

Fixing Point.

Rooflights



Everything on point

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Rooflights Trilite.

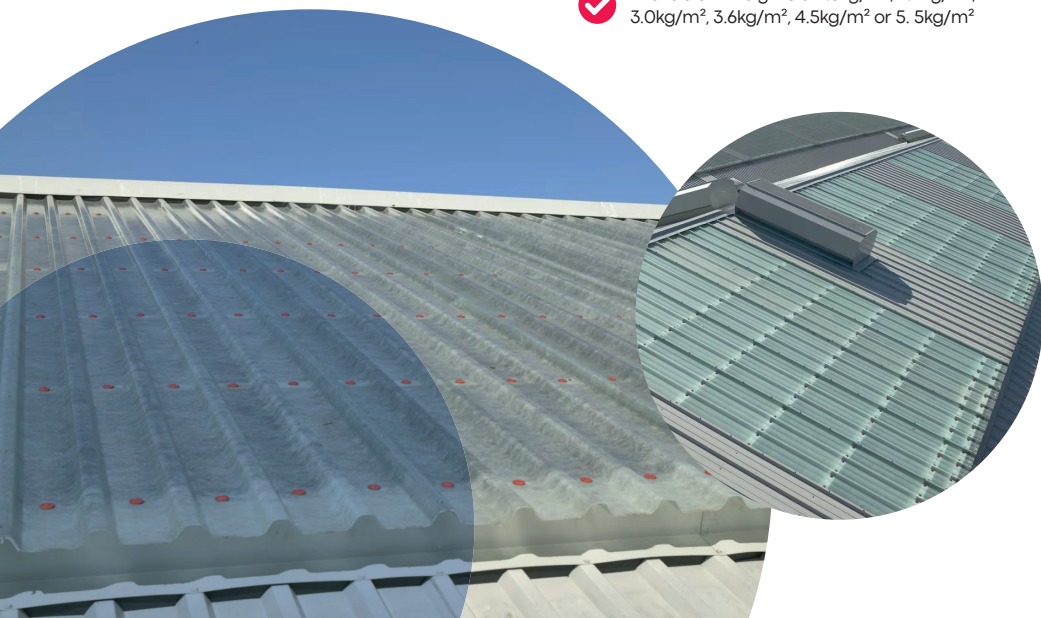
Industrial and agricultural rooflights for metal and fibre cement clad buildings

Fixing Point as key distributors of Brett Martin Daylight Systems (BMDS) rooflights range supplies 'Trilite' GRP rooflights to suit both built-up roofs and walls to suit virtually all current profiles and manufacturers and many obsolete ones too for refurbishment and repair projects.

Trilite.

Site Assembled Rooflight Systems

- ✓ Can be specified and installed to be Class B non-fragile to ACR[M]001
- ✓ Supplied as standard with 'Superlife' UV surface protection
- ✓ Specification of 'Diamond' surface protection for added resistance to weathering, UV degradation and aggressive environments
- ✓ Excellent diffused natural light transmission levels
- ✓ BBA Approved
- ✓ BRE Globally Verified EPD (Environmental Product Declaration) – specific configurations
- ✓ A wide range of profiles to match almost all roof cladding systems
- ✓ Available in weights of 1.8kg/m², 2.4kg/m², 3.0kg/m², 3.6kg/m², 4.5kg/m² or 5. 5kg/m²



Trilite 18 GRP.

Corrugated Translucent GRP Sheets

Trilite 18 rooflights are corrugated translucent GRP sheets; they weigh 1.8 kg/m², and are approximately 1.0mm thick. Typically supplied with fire ratings SAB to BS476 part 3 and Class 3 to BS476 part 7, they are also available with fire ratings of SAA, Class 1 or Class 0.

Trilite 18 rooflights are available to match most corrugated profiles for roof or wall, and are typically used in site assembled applications in combination with other grades of Trilite GRP sheet. They have full BBA approval certified under 04/4114.



Durability.

Trilite 18 rooflights have a life span in excess of 25 years. They have Superlife™ surface protection and UV stabilised resin system to protect against discolouration (yellowing)¹ and degradation which would otherwise be caused by UV exposure and will prevent significant discolouration for at least 20 years.

Safety Requirements / Non-Fragility.

Trilite 18 rooflights can achieve Class B non-fragility to ACR[M]001 in combination with other rooflight skins. The strength of the rooflight sheet itself will be retained in the long term; however, non-fragility is a function of a fully installed assembly which can become fragile even if there has been no deterioration of the rooflight sheet itself.

Rooflight Assembly	Classification ²	Expected period of non-fragility ³
As single skin or liner only	Fragile	-
In combination with Trilite 24 ⁴	Class B	When new ⁵
In combination with Trilite 30 ⁶	Class B	25 Years

PLEASE REFER TO RA (FORMERLY NARM) NTD03 FOR FULL DETAILS & CONDITIONS

Non-fragile rooflight assemblies which include Trilite 18 rooflights (as detailed above) will resist loads typically created by foot-traffic or a falling person without failure, although such impacts may result in damage. Appropriate precautions should be used when installing and accessing these rooflights to ensure they are not subjected to impact or foot traffic.

Damaged rooflights, whether from impact, foot traffic or other cause, must be replaced.

¹ performance proven by accelerated weathering test on rooflight outer sheets (typically SAB class 3 grade), showing delta E less than 10 and light transmission reduced by less than 12% after 3000 hours exposure to QUV testing, comprising cycles of 4 hours of UVA340nm at 60°C and 4 hours condensation at 40°C.

² when installed at purlin centres of 0.6 - 2.0m with a roof system which has been determined (without rooflights) to achieve an equal or better non-fragility classification.

³ when all other components have been specified accordingly and it has been demonstrated that the roof system (without rooflights) will retain the same non-fragile classification for the same period.

⁴ as Trilite 18 liner (fragile) underneath Trilite 24 outer, or as Trilite 18 outer over Trilite 24 liner (where Trilite 24 liner is Class C non-fragile).

Composition & Appearance.

Trilite 18 GRP is manufactured from polyester based resins (containing UV inhibitors, fire retardant and process additives) and chopped strand glass fibre reinforcement, with 33% glass content and are classified CE18⁷; outer sheets also incorporate our Superlife UV protective surface and are classified CE18E⁷.

Coloured Sheet.

Trilite 18 is available as translucent coloured sheet or opaque for specific applications⁸.

Manufacture.

Trilite 18 GRP is manufactured to EN 1013 under ISO 9001 Quality Management System.

Tolerances.

Sheet weight:	± 10%
Sheet length:	-0 +20mm (for sheets <2.5m) -0% +0.8% (for sheets >2.5m)
Cover width:	± 0.8%
Squareness:	0.5% of cover width

Installation.

See detailed installation instructions for products further on in this brochure.

Maintenance, Handling & Storage.

For full maintenance, handling and site storage detail see separate data sheet - COSHH Data Sheet 01.

⁵ the installed assembly may remain non-fragile in the long term but a range of external factors can affect non-fragility, and deterioration of any aspect of the installation may render the installed assembly fragile at any point, typically after 5-20 years, even if there has been no deterioration of the rooflight sheets themselves.

⁶ Trilite 18 outer over Trilite 30 liner (where liner will be class B nonfragile), or Trilite 18 liner (fragile) underneath Trilite 30 outer.

⁷ as defined in National Annex to BS EN 1013.

⁸ please note: some colour pigments can fade over time particularly in translucent sheets, and long term colour stability cannot be guaranteed; please consult BMDs for full details.

Trilite 18 GRP.

Corrugated Translucent GRP Sheets

Fire Classifications of Trilite GRP rooflights

The table below clarifies which fire classifications Trilite GRP rooflights achieve by rooflight grade:

Rooflight Grade	Rooflight Fire Classification					
	Roof Covering		Internal Lining			
	National classification	European classification	National classification			European classification
	(BS 476-3)	(EN 13501-5)	(BS 476-7)	(BS 476-6)	BS 2782-0 Method 508A	(EN 13501-1)
Trilite - SAB3	SAB	B _{ROOF} (t4)	Class 3	NPD	NPD	NPD
Trilite - SAA1	SAA	B _{ROOF} (t4)	Class 1	NPD	TP(a)	NPD
Trilite - SAA0 1.8 kg/m ²	SAA	B _{ROOF} (t4)	Class 1	Class 0	NPD	NPD

NPD - No Performance Declared

Refer to Technical Bulletin 106 or Rooflight Association Quickguides for further details on fire classification requirements.

The fire classification of Trilite GRP rooflight sheets is printed on each rooflight; in addition, a coloured tracer is incorporated to identify the fire rating:

- SAB3 are identified with a blue tracer
- SAA1 are identified with a red tracer
- SAA0 are identified with a red and yellow tracer

Transmission Values

Rooflight Application	Ur Value* (horizontal)	U Value (vertical)	Tv Visible Light Transmission	G Value Total Solar Transmittance	Shading Coefficient
Triple Skin - Site Assembled (Trilite 18 / Cleartherm-10 / Trilite 24)	1.5 W/m ² K	1.3 W/m ² K	0.58	0.55	0.63
Triple Skin - Site Assembled (Trilite 18 / Cleartherm-10 / Trilite 30)	1.5 W/m ² K	1.3 W/m ² K	0.56	0.55	0.63
Triple Skin - Site Assemble ** (Trilite 18 / Cleartherm-16 / Trilite 24)	1.2 W/m ² K	1.1 W/m ² K	0.56	0.50	0.58
Triple Skin - Site Assembled ** (Trilite 18 / Cleartherm-16 / Trilite 30)	1.2 W/m ² K	1.1 W/m ² K	0.54	0.50	0.58

* Thermal performance now assessed in the horizontal plane as required by UK Building Regulations, and now defined as a Ur Value (to denote horizontal plane assessment); surface area ratio is 1; see Technical Bulletin 434 for further details.

** Cleartherm-16 not covered by BBA certification.

Physical Properties

TENSILE STRENGTH: 90 MPa

FLEXURAL STRENGTH: 180MPa

BARCOL HARDNESS: 40 - 50

FIXING PULL-OUT LOAD: 29mm washer: 700 N

COEFFICIENT OF LINEAR EXPANSION: 22 X 10⁻⁵/°C

SERVICE TEMPERATURE: -20°C TO 80°C

FLEXURAL MODULUS: 6600 MPa

GLASS CONTENT: 33%

Trilite 24 GRP.

Corrugated Translucent GRP Sheets

Trilite 24 rooflights are corrugated translucent GRP sheets; they weigh 2.4 kg/m², and are approximately 1.3mm thick. Typically supplied with fire ratings SAB to BS476 part 3 and Class 3 to BS476 part 7, they are also available with fire ratings of SAA, Class 1 or Class 0.

Trilite 24 rooflights are available to match most corrugated profiles for roof or wall, and are typically used in site assembled applications in combination with other grades of Trilite GRP sheet. They have full BBA approval certified under 04/4114.



Durability.

Trilite 24 rooflights have a life span in excess of 25 years. They have Superlife™ surface protection and UV stabilised resin system to protect against discolouration (yellowing)¹ and degradation which would otherwise be caused by UV exposure and will prevent significant discolouration for at least 20 years.

Safety Requirements / Non-Fragility.

Trilite 24 rooflights can achieve Class B non-fragility to ACR[M]001 in combination with other rooflight skins. The strength of the rooflight sheet itself will be retained in the long term; however, non-fragility is a function of a fully installed assembly which can become fragile even if there has been no deterioration of the rooflight sheet itself.

Rooflight Assembly	Classification ²	Expected period of non-fragility ³
As single skin or liner only ⁴	Class C	When new ⁵
In combination with Trilite 18 ⁴	Class B	When new ⁵
In combination with Trilite 24 ⁶	Class B	25 Years ⁷

PLEASE REFER TO RA (FORMERLY NARM) NTD03 FOR FULL DETAILS & CONDITIONS

Non-fragile rooflight assemblies which include Trilite 24 rooflights (as detailed above) will resist loads typically created by foot-traffic or a falling person without failure, although such impacts may result in damage. Appropriate precautions should be used when installing and accessing these rooflights to ensure they are not subjected to impact or foot traffic.

Damaged rooflights, whether from impact, foot traffic or other cause, must be replaced.

¹ performance proven by accelerated weathering test on rooflight outer sheets (typically SAB class 3 grade), showing delta E less than 10 and light transmission reduced by less than 12% after 3000 hours exposure to QUV testing, comprising cycles of 4 hours of UVA340nm at 60°C and 4 hours condensation at 40°C.

² when installed at purlin centres of 0.6 - 2.0m with a roof system which has been determined (without rooflights) to achieve an equal or better non-fragility classification.

³ when all other components have been specified accordingly and it has been demonstrated that the roof system (without rooflights) will retain the same non-fragile classification for the same period.

⁴ Single skin for Fibre Cement profiles only; liner in typical liner profile only.

Composition & Appearance.

Trilite 18 GRP is manufactured from polyester based resins (containing UV inhibitors, fire retardant and process additives) and chopped strand glass fibre reinforcement, with 33% glass content and are classified CE18⁸; outer sheets also incorporate our Superlife UV protective surface and are classified CE18E⁷.

Coloured Sheet.

Trilite 18 is available as translucent coloured sheet or opaque for specific applications⁸.

Manufacture.

Trilite 18 GRP is manufactured to EN 1013 under ISO 9001 Quality Management System.

Tolerances.

Sheet weight:	± 10%
Sheet length:	-0 +20mm (for sheets <2.5m) -0% +0.8% (for sheets >2.5m)
Cover width:	± 0.8%
Squareness:	0.5% of cover width

Installation.

See detailed installation instructions for products further on in this brochure.

Maintenance, Handling & Storage.

For full maintenance, handling and site storage detail see separate data sheet - COSHH Data Sheet 01.

⁵ the installed assembly may remain non-fragile in the long term but a range of external factors can affect non-fragility, and deterioration of any aspect of the installation may render the installed assembly fragile at any point, typically after 5-20 years, even if there has been no deterioration of the rooflight sheets themselves.

⁶ as Trilite 18 liner (fragile) underneath Trilite 24 outer, or as Trilite 18 outer over Trilite 24 liner (where Trilite 24 liner is Class C non-fragile if typical liner profile).

⁷ Trilite 24 outer over Trilite 24 liner (where the Trilite 24 liner is Class C non-fragile if typical liner profile).

⁸ as defined in National Annex to BS EN 1013.

⁹ please note: some colour pigments can fade over time particularly in translucent sheets, and long term colour stability cannot be guaranteed; please consult BMDS for full details.

Trilite 24 GRP.

Corrugated Translucent GRP Sheets

Fire Classifications of Trilite GRP rooflights

The table below clarifies which fire classifications Trilite GRP rooflights achieve by rooflight grade:

Rooflight Grade	Rooflight Fire Classification					
	Roof Covering		Internal Lining			
	National classification	European classification	National classification			European classification
	(BS 476-3)	(EN 13501-5)	(BS 476-7)	(BS 476-6)	BS 2782-0 Method 508A	(EN 13501-1)
Trilite - SAB3	SAB	B _{ROOF} (t4)	Class 3	NPD	NPD	NPD
Trilite - SAA1	SAA	B _{ROOF} (t4)	Class 1	NPD	TP(a)	NPD

NPD - No Performance Declared

Refer to Technical Bulletin 106 or Rooflight Association Quickguides for further details on fire classification requirements.

The fire classification of Trilite GRP rooflight sheets is printed on each rooflight; in addition, a coloured tracer is incorporated to identify the fire rating:

- SAB3 are identified with a blue tracer
- SAA1 are identified with a red tracer
- SAA0 are identified with a red and yellow tracer

Transmission Values

Rooflight Application	Ur Value* (horizontal)	U Value (vertical)	Tv Visible Light Transmission	G Value Total Solar Transmittance	Shading Coefficient
Triple Skin - Site Assembled (Trilite 24 / Cleartherm-10 / Trilite 18)	1.5 W/m ² K	1.3 W/m ² K	0.58	0.55	0.63
Triple Skin - Site Assembled (Trilite 24 / Cleartherm-10 / Trilite 24)	1.5 W/m ² K	1.3 W/m ² K	0.56	0.53	0.60
Triple Skin - Site Assembled ** (Trilite 24 / Cleartherm-16 / Trilite 18)	1.2 W/m ² K	1.1 W/m ² K	0.56	0.47	0.55
Triple Skin - Site Assembled ** (Trilite 24 / Cleartherm-16 / Trilite 24)	1.2 W/m ² K	1.1 W/m ² K	0.54	0.48	0.55

* Thermal performance now assessed in the horizontal plane as required by UK Building Regulations, and now defined as a Ur Value (to denote horizontal plane assessment); surface area ratio is 1: see Technical Bulletin 434 for further details.

** Cleartherm-16 not covered by BBA certification.

Physical Properties

TENSILE STRENGTH: 90 MPa

FLEXURAL STRENGTH: 180MPa

BARCOL HARDNESS: 40 - 50

FIXING PULL-OUT LOAD: 29mm washer: 930 N

COEFFICIENT OF LINEAR EXPANSION: 22 X 10⁻⁶/°C

SERVICE TEMPERATURE: -20°C TO 80°C

FLEXURAL MODULUS: 6600 MPa

GLASS CONTENT: 33%

Trilite 30 GRP.

Corrugated Translucent GRP Sheets

Trilite 30 rooflights are corrugated translucent GRP sheets; they weigh 3.0 kg/m², and are approximately 1.7mm thick. Typically supplied with fire ratings SAB to BS476 part 3 and Class 3 to BS476 part 7, they are also available with fire ratings of SAA, Class 1 or Class 0.

Trilite 30 rooflights are available to match most corrugated profiles for roof or wall, and are typically used in site assembled applications in combination with other grades of Trilite GRP sheet. They have full BBA approval certified under 04/4114.



Durability.

Trilite 30 rooflights have a life span in excess of 25 years. They have Superlife™ surface protection and a UV stabilised resin system to protect against discolouration (yellowing) and degradation which would otherwise be caused by UV exposure and will prevent significant discolouration for at least 20 years.

Safety Requirements / Non-Fragility.

Trilite 30 rooflights can achieve Class B non-fragility to ACR[M]001 as a single skin rooflight and in combination with other rooflight skins. The strength of the rooflight sheet itself will be retained in the long term; however, nonfragility is a function of a fully installed assembly which can become fragile even if there has been no deterioration of the rooflight sheet itself.

Rooflight Assembly	Classification ²	Expected period of non-fragility ³
As single skin or liner only ⁴	Class B	When new ⁵
In combination with Trilite 18 ⁴ (or higher)	Class B	25 Years

PLEASE REFER TO RA (FORMERLY NARM) NT003 FOR FULL DETAILS & CONDITIONS

Non-fragile rooflight assemblies which include Trilite 30 rooflights (as detailed above) will resist loads typically created by foot-traffic or a falling person without failure, although such impacts may result in damage. Appropriate precautions should be used when installing and accessing these rooflights to ensure they are not subjected to impact or foot traffic.

Damaged rooflights, whether from impact, foot traffic or other cause, must be replaced.

Composition & Appearance.

Trilite 30 GRP is manufactured from polyester based resins (containing UV inhibitors, fire retardant and process additives) and chopped strand glass fibre reinforcement, with 33% glass content and are classified CE30⁷. Outer sheets also incorporate our Superlife UV protective surface and are classified CE30E⁷.

Coloured Sheet.

Trilite 30 GRP is available as translucent coloured sheet or opaque for specific applications⁸.

Manufacture.

Trilite 30 GRP is manufactured to EN 1013 under ISO 9001 Quality Management System.

Tolerances.

Sheet weight:	± 10%
Sheet length:	-0 +20mm (for sheets <2.5m) -0% +0.8% (for sheets >2.5m)
Cover width:	± 0.8%
Squareness:	0.5% of cover width

Installation.

See detailed installation instructions for products further on in this brochure.

Maintenance, Handling & Storage.

For full maintenance, handling and site storage detail see separate data sheet - COSHH Data Sheet 01.

¹ performance proven by accelerated weathering test on rooflight outer sheets (typically SAB class 3 grade), showing delta E less than 10 and light transmission reduced by less than 12% after 3000 hours exposure to QUV testing, comprising cycles of 4 hours of UVA340nm at 60°C and 4 hours condensation at 40°C.

² when installed at purlin centres of 0.6 - 2.0m with a roof system which has been determined (without rooflights) to achieve an equal or better non-fragility classification.

³ when all other components have been specified accordingly and it has been demonstrated that the roof system (without rooflights) will retain the same non-fragile classification for the same period.

⁴ if sinusoidal profile to suit Fibre Cement sheet, the expected period of non-fragility will be 25 years.

⁵ the installed assembly may remain non-fragile in the long term but a range of external factors can affect non-fragility, and deterioration of any aspect of the installation may render the installed assembly fragile at any point, typically after 5-20 years, even if there has been no deterioration of the rooflight sheets themselves.

⁶ Trilite 18 liner (fragile) with Trilite 30 outer, or Trilite 18 outer over Trilite 30 liner (where the liner will be Class B non-fragile)

⁷ as defined in National Annex to BS EN 1013.

⁸ please note: some colour pigments can fade over time particularly in translucent sheets, and long term colour stability cannot be guaranteed; please consult BMDS for full details.

Trilite 30 GRP.

Corrugated Translucent GRP Sheets

Fire Classifications of Trilite GRP rooflights

The table below clarifies which fire classifications Trilite GRP rooflights achieve by rooflight grade:

Rooflight Grade	Rooflight Fire Classification					
	Roof Covering		Internal Lining			
	National classification	European classification	National classification			European classification
	(BS 476-3)	(EN 13501-5)	(BS 476-7)	(BS 476-6)	BS 2782-0 Method 508A	(EN 13501-1)
Trilite - SAB3	SAB	B _{ROOF} (t4)	Class 3	NPD	NPD	NPD
Trilite - SAA1	SAA	B _{ROOF} (t4)	Class 1	NPD	TP(a)	NPD

NPD - No Performance Declared

Refer to Technical Bulletin 106 or Rooflight Association Quickguides for further details on fire classification requirements.

The fire classification of Trilite GRP rooflight sheets is printed on each rooflight; in addition, a coloured tracer is incorporated to identify the fire rating:

- SAB3 are identified with a blue tracer
- SAA1 are identified with a red tracer
- SAA0 are identified with a red and yellow tracer

Transmission Values

Rooflight Application	Ur Value* (horizontal)	U Value (vertical)	Tv Visible Light Transmission	G Value Total Solar Transmittance	Shading Coefficient
Single Skin (Trilite 30)	-	-	0.78	0.76	0.87
Triple Skin - Site Assembled (Trilite 30 / Cleartherm-10 / Trilite 18)	1.5 W/m ² K	1.3 W/m ² K	0.55	0.51	0.58
Triple Skin - Site Assembled ** (Trilite 30 / Cleartherm-16 / Trilite 18)	1.2 W/m ² K	1.1 W/m ² K	0.54	0.46	0.52

* Thermal performance now assessed in the horizontal plane as required by UK Building Regulations, and now defined as a Ur Value (to denote horizontal plane assessment); surface area ratio is 1; see Technical Bulletin 434 for further details.

** Cleartherm-16 not covered by BBA certification.

Physical Properties

TENSILE STRENGTH: 90 MPa
FLEXURAL STRENGTH: 180MPa
BARCOL HARDNESS: 40 - 50

FIXING PULL-OUT LOAD: 29mm washer: 1160 N
COEFFICIENT OF LINEAR EXPANSION: 22 X 10⁻⁶/°C
SERVICE TEMPERATURE: -20°C TO 80°C

FLEXURAL MODULUS: 6600 MPa
GLASS CONTENT: 33%

Trilite Ultra 36 GRP.

Corrugated Translucent GRP Sheets

Trilite Ultra 36 rooflights are corrugated translucent GRP sheets; they weigh 3.6 kg/m², and are approximately 2.0mm thick. Typically supplied with fire ratings SAB to BS476 part 3 and Class 3 to BS476 part 7, they are also available with fire ratings of SAA, Class 1 or Class 0.

Trilite Ultra 36 rooflights are available to match most corrugated profiles for roof or wall, and are typically used in site assembled applications in combination with other grades of Trilite GRP sheet or as single skin. They have full BBA approval certified under 04/4114.



Durability.

Trilite Ultra 36 rooflights have a life span in excess of 30 years. They have Superlife™ surface protection and a UV stabilised resin system to protect against discolouration (yellowing) and degradation which would otherwise be caused by UV exposure and will prevent significant discolouration for at least 20 years.

Safety Requirements / Non-Fragility.

Trilite Ultra 36 rooflights can achieve Class B non-fragility to ACR[M]001 as a single skin sheet or in combination with other rooflight skins. They exceed minimum industry guidelines (as defined in Rooflight Association, formerly NARM, Technical Document NTD03):

Rooflight Assembly	Classification ²	Expected period of non-fragility ³
As single skin or liner only	Class B	25 Years
In combination with Trilite 18 ⁴ (or higher)	Class B	25 Years

PLEASE REFER TO RA (FORMERLY NARM) NTD03 FOR FULL DETAILS & CONDITIONS

Trilite Ultra 36 rooflights fully fixed in these applications will resist loads typically created by foot-traffic or a falling person without failure, although such impacts may result in minor damage. Appropriate precautions should be used when installing and accessing these rooflights to ensure they are not subjected to impact or foot traffic.

Damaged rooflights, whether from impact, foot traffic or other cause, must be replaced.

Composition & Appearance.

Trilite Ultra 36 GRP is manufactured from polyester based resins (containing UV inhibitors, fire retardant and process additives) and chopped strand glass fibre reinforcement, with 33% glass content and are classified CE36⁵. Outer sheets also incorporate our Superlife UV protective surface and are classified CE36E⁵.

Coloured Sheet.

Trilite Ultra 36 GRP is available as translucent coloured sheet or opaque for specific applications⁶.

Manufacture.

Trilite Ultra 36 GRP is manufactured to EN 1013 under ISO 9001 Quality Management System.

Tolerances.

Sheet weight:	± 10%
Sheet length:	-0 +20mm (for sheets <2.5m) -0% +0.8% (for sheets >2.5m)
Cover width:	± 0.8%
Squareness:	0.5% of cover width

Installation.

See detailed installation instructions for products further on in this brochure.

Maintenance, Handling & Storage.

For full maintenance, handling and site storage details see separate data sheet - COSHH Data Sheet 01.

¹ performance proven by accelerated weathering test on rooflight outer sheets (typically SAB class 3 grade), showing delta E less than 10 and light transmission reduced by less than 12% after 3000 hours exposure to QUV testing, comprising cycles of 4 hours of UVA340nm at 60°C and 4 hours condensation at 40°C.

² when installed at purlin centres of 0.6 - 2.0m with a roof system which has been determined (without rooflights) to achieve an equal or better non-fragility classification.

³ when all other components have been specified accordingly and it has been demonstrated that the roof system (without rooflights) will retain the same non-fragile classification for the same period.

⁴ Trilite 18 liner (fragile) with Trilite 36 outer, or Trilite 18 outer over Trilite 36 liner (where the liner will be Class B non-fragile).

⁵ as defined in National Annex to BS EN 1013

⁶ please note: some colour pigments can fade over time particularly in translucent sheets, and long term colour stability cannot be guaranteed; please consult BMDS for full details.

Trilite Ultra 36 GRP.

Corrugated Translucent GRP Sheets

Fire Classifications of Trilite GRP rooflights

The table below clarifies which fire classifications Trilite GRP rooflights achieve by rooflight grade:

Rooflight Grade	Rooflight Fire Classification					
	Roof Covering		Internal Lining			
	National classification	European classification	National classification			European classification
	(BS 476-3)	(EN 13501-5)	(BS 476-7)	(BS 476-6)	BS 2782-0 Method 508A	(EN 13501-1)
Trilite - SAB3	SAB	B _{ROOF} (t4)	Class 3	NPD	NPD	NPD
Trilite - SAA1	SAA	B _{ROOF} (t4)	Class 1	NPD	TP(a)	NPD

NPD - No Performance Declared

Refer to Technical Bulletin 106 or Rooflight Association Quickguides for further details on fire classification requirements.

The fire classification of Trilite GRP rooflight sheets is printed on each rooflight; in addition, a coloured tracer is incorporated to identify the fire rating:

- SAB3 are identified with a blue tracer
- SAA1 are identified with a red tracer
- SAA0 are identified with a red and yellow tracer

Transmission Values

Rooflight Application	Ur Value* (horizontal)	U Value (vertical)	Tv Visible Light Transmission	G Value Total Solar Transmittance	Shading Coefficient
Single Skin (Trilite 36)	-	-	0.78	0.76	0.87
Triple Skin - Site Assembled (Trilite 36 / Cleartherm-10 / Trilite 18)	1.5 W/m ² K	1.3 W/m ² K	0.54	0.51	0.58
Triple Skin - Site Assembled ** (Trilite 36 / Cleartherm-16 / Trilite 18)	1.2 W/m ² K	1.1 W/m ² K	0.52	0.44	0.51

* Thermal performance now assessed in the horizontal plane as required by UK Building Regulations, and now defined as a Ur Value (to denote horizontal plane assessment); surface area ratio is 1; see Technical Bulletin 434 for further details.

** Cleartherm-16 not covered by BBA certification.

Physical Properties

TENSILE STRENGTH: 90 MPa	FIXING PULL-OUT LOAD: 29mm washer; 1400 N	FLEXURAL MODULUS: 6600 MPa
FLEXURAL STRENGTH: 180MPa	COEFFICIENT OF LINEAR EXPANSION: 22 X 10 ⁻⁶ /°C	GLASS CONTENT: 33%
BARCOL HARDNESS: 40 - 50	SERVICE TEMPERATURE: -20°C TO 80°C	

Trilite Ultra 45 GRP.

Corrugated Translucent GRP Sheets

Trilite Ultra 45 rooflights are corrugated translucent GRP sheets; they weigh 4.5 kg/m², and are approximately 2.5mm thick. Typically supplied with fire ratings SAB to BS476 part 3 and Class 3 to BS476 part 7, they are also available with fire ratings of SAA, Class 1 or Class 0.

Trilite Ultra 45 rooflights are available to match most corrugated profiles for roof or wall, and are typically used in site assembled applications in combination with other grades of Trilite GRP sheet or as single skin. They have full BBA approval certified under 04/4114.



Durability.

Trilite Ultra 45 rooflights have a life span in excess of 30 years. They have Superlife™ surface protection and a UV stabilised resin system to protect against discolouration (yellowing) and degradation which would otherwise be caused by UV exposure and will prevent significant discolouration for at least 20 years.

Safety Requirements / Non-Fragility.

Trilite Ultra 45 rooflights can achieve Class B non-fragility to ACR[M]001 as a single skin sheet and in combination with other rooflight skins. They exceed minimum industry guidelines (as defined in Rooflight Association, formerly NARM, Technical Document NTD03):

Rooflight Assembly	Classification ²	Expected period of non-fragility ³
As single skin or liner only	Class B	25 Years
In combination with Trilite 18 ⁴ (or higher)	Class B	25 Years

PLEASE REFER TO RA (FORMERLY NARM) NTD03 FOR FULL DETAILS & CONDITIONS

Trilite 45 rooflights fully fixed in these applications will resist loads typically created by foot-traffic or a falling person without damage. Appropriate precautions should be used when installing and accessing these rooflights to ensure they are not subjected to impact or foot traffic.

Damaged rooflights, whether from impact, foot traffic or other cause, must be replaced

Composition & Appearance.

Trilite Ultra 45 GRP is manufactured from polyester based resins (containing UV inhibitors, fire retardant and process additives) and chopped strand glass fibre reinforcement, with 33% glass content and are classified CE45⁵. Outer sheets also incorporate our Superlife UV protective surface and are classified CE45E⁵.

Coloured Sheet.

Trilite Ultra 45 GRP is available as translucent coloured sheet or opaque for specific applications⁶.

Manufacture.

Trilite Ultra 45 GRP is manufactured to EN 1013 under ISO 9001 Quality Management System.

Tolerances.

Sheet weight:	± 10%
Sheet length:	-0 +20mm (for sheets <2.5m) -0% +0.8% (for sheets >2.5m)
Cover width:	± 0.8%
Squareness:	0.5% of cover width

Installation.

See detailed installation instructions for products further on in this brochure.

Maintenance, Handling & Storage.

For full maintenance, handling and site storage detail see separate data sheet - COSHH Data Sheet 01.

¹ performance proven by accelerated weathering test on rooflight outer sheets (typically SAB class 3 grade), showing delta E less than 10 and light transmission reduced by less than 12% after 3000 hours exposure to QUV testing, comprising cycles of 4 hours of UVA340nm at 60°C and 4 hours condensation at 40°C.

² when installed at purlin centres of 0.6 - 2.0m with a roof system which has been determined (without rooflights) to achieve an equal or better non-fragility classification.

³ when all other components have been specified accordingly and it has been demonstrated that the roof system (without rooflights) will retain the same non-fragile classification for the same period.

⁴ Trilite 18 liner (fragile) with Trilite 45 outer, or Trilite 18 outer over Trilite 45 liner (where the liner will be Class B non-fragile).

⁵ as defined in National Annex to BS EN 1013

⁶ please note: some colour pigments can fade over time particularly in translucent sheets, and long term colour stability cannot be guaranteed; please consult BMDS for full details.

Trilite Ultra 45 GRP.

Corrugated Translucent GRP Sheets

Fire Classifications of Trilite GRP rooflights

The table below clarifies which fire classifications Trilite GRP rooflights achieve by rooflight grade:

Rooflight Grade	Rooflight Fire Classification					
	Roof Covering		Internal Lining			
	National classification	European classification	National classification			European classification
	(BS 476-3)	(EN 13501-5)	(BS 476-7)	(BS 476-6)	BS 2782-0 Method 508A	(EN 13501-1)
Trilite - SAB3	SAB	B _{ROOF} (t4)	Class 3	NPD	NPD	NPD
Trilite - SAA1	SAA	B _{ROOF} (t4)	Class 1	NPD	TP(a)	NPD

NPD - No Performance Declared

Refer to Technical Bulletin 106 or Rooflight Association Quickguides for further details on fire classification requirements.

The fire classification of Trilite GRP rooflight sheets is printed on each rooflight; in addition, a coloured tracer is incorporated to identify the fire rating:

- SAB3 are identified with a blue tracer
- SAA1 are identified with a red tracer
- SAA0 are identified with a red and yellow tracer

Transmission Values

Rooflight Application	Ur Value* (horizontal)	U Value (vertical)	Tv Visible Light Transmission	G Value Total Solar Transmittance	Shading Coefficient
Single Skin (Trilite Ultra 45)	-	-	0.74	0.72	0.83
Triple Skin - Site Assembled (Trilite Ultra 45 / Cleartherm-10 / Trilite 18)	1.5 W/m ² K	1.3 W/m ² K	0.51	0.46	0.53
Triple Skin - Site Assembled ** (Trilite Ultra 45 / Cleartherm-16 / Trilite 18)	1.2 W/m ² K	1.1 W/m ² K	0.50	0.42	0.49

* Thermal performance now assessed in the horizontal plane as required by UK Building Regulations, and now defined as a Ur Value (to denote horizontal plane assessment); surface area ratio is 1; see Technical Bulletin 434 for further details.

** Cleartherm-16 not covered by BBA certification.

Physical Properties

TENSILE STRENGTH: 90 MPa	FIXING PULL-OUT LOAD: 29mm washer: 1710 N	FLEXURAL MODULUS: 6600 MPa
FLEXURAL STRENGTH: 180MPa	COEFFICIENT OF LINEAR EXPANSION: 22 X 10 ⁻⁶ /°C	GLASS CONTENT: 33%
BARCOL HARDNESS: 40 - 50	SERVICE TEMPERATURE: -20°C TO 80°C	

Safelight rooflights are corrugated translucent GRP sheets; they weigh 5.5kg/m², and are approximately 3.0mm thick. Typically supplied with fire ratings SAB to BS476 part 3 and Class 3 to BS476 part 7, they are also available with fire ratings of SAA, Class 1 or Class 0. Safelight is suitable for buildings in particularly aggressive environments. Please refer to technical with proposed application details.

Safelight rooflights are available to match most corrugated profiles for roof or wall, and are typically used in site assembled applications in combination with other grades of Trilite GRP sheet or as single skin. They have full BBA approval certified under 04/4114.



Durability.

Safelight rooflights have a life span in excess of 30 years. They have Diamond™ surface protection and a UV stabilised resin system to protect against discolouration (yellowing) and degradation which would otherwise be caused by UV exposure and will prevent significant discolouration for over 20 years.

Safety Requirements / Non-Fragility.

Safelight rooflights can achieve Class B non-fragility to ACR[M]001 as a single skin sheet and in combination with other rooflight skins. They exceed minimum industry guidelines (as defined in Rooflight Association, formerly NARM, Technical Document NTD03):

Rooflight Assembly	Classification ²	Expected period of non-fragility ³
As single skin	Class B	30 Years
In combination with Trilite 18 ⁴ (or higher)	Class B	30 Years

PLEASE REFER TO RA (FORMERLY NARM) NTD03 FOR FULL DETAILS & CONDITIONS

Safelight rooflights will resist loads typically created by foot-traffic or a falling person without damage. They are sufficiently rigid and strong to ensure inclusion into a roof does not create any additional risk, and do not rely on the fasteners for their non-fragile performance. They are marked with a continuous indeleble logo to clearly indicate safety performance.

¹ performance proven by accelerated weathering test on rooflight outer sheets (typically SAB class 3 grade), showing delta E less than 5 and light transmission reduced by less than 5% after 6000 hours exposure to QUV testing, comprising cycles of 4 hours of UVA340nm at 60°C and 4 hours condensation at 40°C.

² when installed at purlin centres of 0.6 - 2.0m with a roof system which has been determined (without rooflights) to achieve an equal or better non-fragility classification.

³ when all other components have been specified accordingly and it has been demonstrated that the roof system (without rooflights) will retain the same non-fragile classification for the same period.

Composition & Appearance.

Safelight GRP is manufactured from polyester based resins (containing UV inhibitors, fire retardant and process additives) and chopped strand glass fibre reinforcement, with 33% glass content and are classified CE55⁵. Outer sheets also incorporate our Superlife UV protective surface and are classified CE55E⁵.

Coloured Sheet.

Safelight GRP is available as translucent coloured sheet or opaque for specific applications⁶.

Manufacture.

Safelight GRP is manufactured to EN 1013 under ISO 9001 Quality Management System.

Tolerances.

Sheet weight:	± 10%
Sheet length:	-0 +20mm (for sheets <2.5m) -0% +0.8% (for sheets >2.5m)
Cover width:	± 0.8%
Squareness:	0.5% of cover width

Installation.

See detailed installation instructions for products further on in this brochure.

Maintenance, Handling & Storage.

For full maintenance, handling and site storage details see separate data sheet - COSHH Data Sheet 01.

⁴ Trilite 18 liner (fragile) with Safelight outer, or Trilite 18 outer over Safelight liner (where the liner will be Class B non-fragile).

⁵ as defined in National Annex to BS EN 1013

⁶ please note: some colour pigments can fade over time particularly in translucent sheets, and long term colour stability cannot be guaranteed; please consult BMDS for full details.

Fire Classifications of Trilite GRP rooflights

The table below clarifies which fire classifications Trilite GRP rooflights achieve by rooflight grade:

Rooflight Grade	Rooflight Fire Classification					
	Roof Covering		Internal Lining			
	National classification	European classification	National classification			European classification
	(BS 476-3)	(EN 13501-5)	(BS 476-7)	(BS 476-6)	BS 2782-0 Method 508A	(EN 13501-1)
Trilite - SAB3	SAB	B _{ROOF} (t4)	Class 3	NPD	NPD	NPD
Trilite - SAA1	SAA	B _{ROOF} (t4)	Class 1	NPD	TP(a)	NPD

NPD - No Performance Declared

Refer to Technical Bulletin 106 or Rooflight Association Quickguides for further details on fire classification requirements.

The fire classification of Trilite GRP rooflight sheets is printed on each rooflight; in addition, a coloured tracer is incorporated to identify the fire rating:

- SAB3 are identified with a blue tracer
- SAA1 are identified with a red tracer
- SAA0 are identified with a red and yellow tracer

Transmission Values

Rooflight Application	Ur Value* (horizontal)	U Value (vertical)	Tv Visible Light Transmission	G Value Total Solar Transmittance	Shading Coefficient
Single Skin (Safelight)	-	-	0.71	0.69	0.79
Triple Skin - Site Assembled (Safelight / Cleartherm-10 / Trilite 18)	1.5 W/m ² K	1.3 W/m ² K	0.50	0.46	0.53
Triple Skin - Site Assembled ** (Safelight / Cleartherm-16 / Trilite 18)	1.2 W/m ² K	1.1 W/m ² K	0.49	0.41	0.47

* Thermal performance now assessed in the horizontal plane as required by UK Building Regulations, and now defined as a Ur Value (to denote horizontal plane assessment); surface area ratio is 1; see Technical Bulletin 434 for further details.

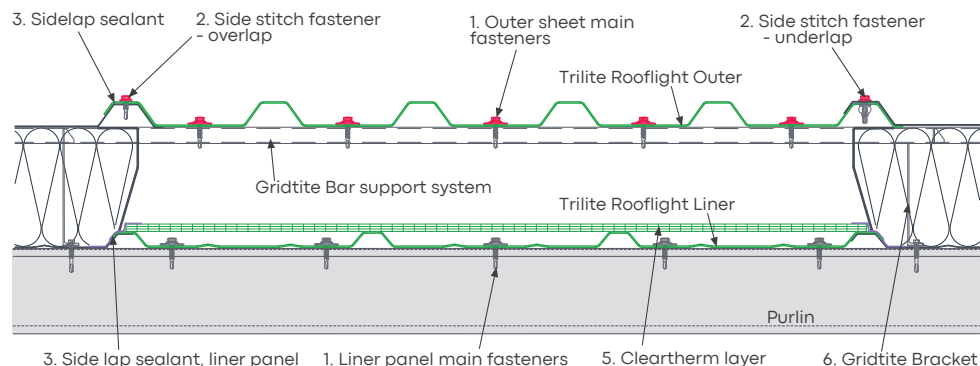
** Cleartherm-16 not covered by BBA certification.

Physical Properties

TENSILE STRENGTH: 90 MPa	FIXING PULL-OUT LOAD: 29mm washer: 2090 N	FLEXURAL MODULUS: 6600 MPa
FLEXURAL STRENGTH: 180MPa	COEFFICIENT OF LINEAR EXPANSION: 22 X 10 ⁻⁶ /°C	GLASS CONTENT: 33%
BARCOL HARDNESS: 40 - 50	SERVICE TEMPERATURE: -20°C TO 80°C	

Trilite 18, 24 & 30 Installation Guide.

Main Fasteners - End Lap & Intermediate Purlin



General Arrangement.

Generally, Gridtite Brackets are positioned outside of the area of rooflight, necessitating the use of 3m Gridtite Bars. Cleartherm sheets are normally fitted in standard 6m sheet lengths butted up to one another for lowest cost. (Butt joints between sheets do not need to be aligned with purlins or laps in the liner or outer sheet). Alternatively, Gridtite Brackets can be positioned as normal within the rooflight area (avoiding the need for longer Gridtite Bars). In this case Cleartherm sheets should be fitted in single span lengths, butted together along the line of the Gridtite Bar with the end of the sheet notched to clear the Gridtite Bracket.

Fixing Sequence.

Cleartherm is laid and secured over the liner panel (after the liner has been fitted as normal); the Gridtite Bar system, fillers and/or flashings to stop insulation migration are then fitted as normal. Note: Cleartherm sheets should not be exposed to weather before the outer sheet is fitted. The Cleartherm sheet can also be installed at the same time as the outer sheet, simply sliding into position under the Gridtite Bars; limiting sheet lengths to double spans may assist with this.

1

Main fasteners.

Stainless steel Ø5.5mm with min Ø29mm sealing washer with soft bonded seal, typically poppy red. Min 5 fasteners per purlin, fitted in the trough, max 200mm apart. For profiles >200mm pitch use two fasteners per trough, located either side of the main corrugations.

Outer Sheet - fasteners located in the centre of the top flange of the Gridtite Bar.

Liner Panel - The panel should extend a min of 50mm beyond the fixing line at each end after allowing for on site tolerances. Fixed Gridtite Bar brackets can be regarded as a single fastener.

See over for typical fastener references.

2

Side Stitch Fasteners.

Brett Martin Daylight Systems recommend GRP overlaps the metal on both sides if possible to reduce the cost and number of fastener types on site, and improve ease of installation.

Stainless steel side stitch fastener with Ø16/19mm sealing washer, typically poppy red; fix at 300mm to max 400mm centres and evenly spaced about all end laps - not through the end lap joint. If it is necessary for the GRP to underlap the metal on one side, use expanding rubber bolts.

See over for typical fastener references.

3

Side Lap Sealant.

Outer Sheet - One run of Class A 6x5mm cross linked butyl mastic, pale coloured, positioned on the crown of the sidelap corrugation, on the weather side of the side stitch fasteners.

Liner Panel - Both sides should lap over the adjacent metal sheet. Apply 50mm wide film backed butyl tape over laps to prevent opening, improve resistance to impact, airtightness and vapour control.

4

End Lap Sealant.

Outer Sheet - Two beads of Class A 6x5mm cross linked butyl mastic, pale coloured, positioned max 25mm above and below fixing line. If a third seal at the tail of the end lap is required, gun grade silicone (ISO11600-F-25LM) should be used.

Liner Panel - One bead of Class A 6x5mm cross linked butyl mastic, pale coloured, position inside the lap, along the line of the fasteners or alternatively with 50mm wide film backed butyl tape over the lap.

5

Cleartherm layer.

Simply secured with 50mm film backed butyl tape along each side lap. Alternatively, 9x3mm sealant can be applied to the crown of each side corrugation of the liner panel and the Cleartherm layer placed on top.

6

Spacer bar bracket positioning.

Generally, Gridtite Brackets are positioned outside of the area of rooflight, necessitating the use of 3m Gridtite Bars. Alternatively, Gridtite Brackets can be positioned as normal within the rooflight area (avoiding the need for longer Gridtite Bars), but this will require Cleartherm sheets to be fitted in single span lengths, butted together along the line of the Gridtite Bar with the end of the sheet notched to clear the Gridtite Brackets.

Correct installation of rooflights is important to ensure they achieve the correct level of safety performance and give long term weather tightness.

For full installation guide please contact our technical department.

Recommended Fixing Point Fasteners.

Main Fasteners - Outer Sheet	04E53SCT435S29
Main Fasteners Line Panel	SD435S29
Side Stitch Fasteners - Overlapping	04E53SCTS25S19
Side Stitch Fasteners - Underlapping	04E53LAPLOXS19



MINIMUM ROOF PITCH
Minimum design roof pitch
5.5° (finished roof pitch 4°)



CORRECT HANDLING OF GRP IS CRITICAL
- full guidance given in TB154

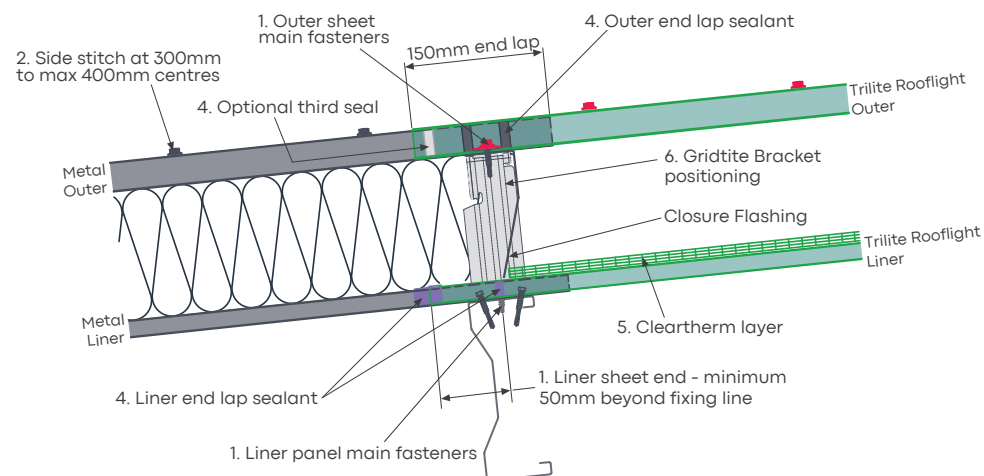


DO NOT
over drive fasteners

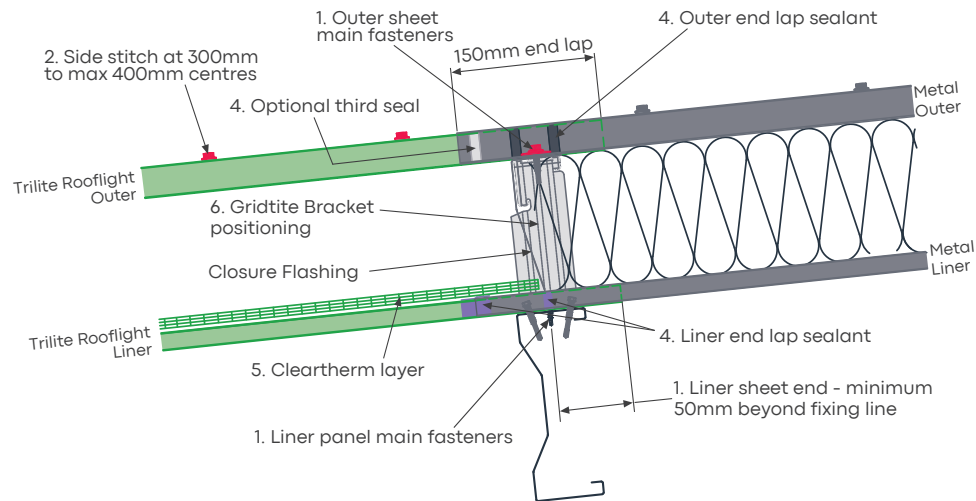


ONLY
use good quality
assured fasteners

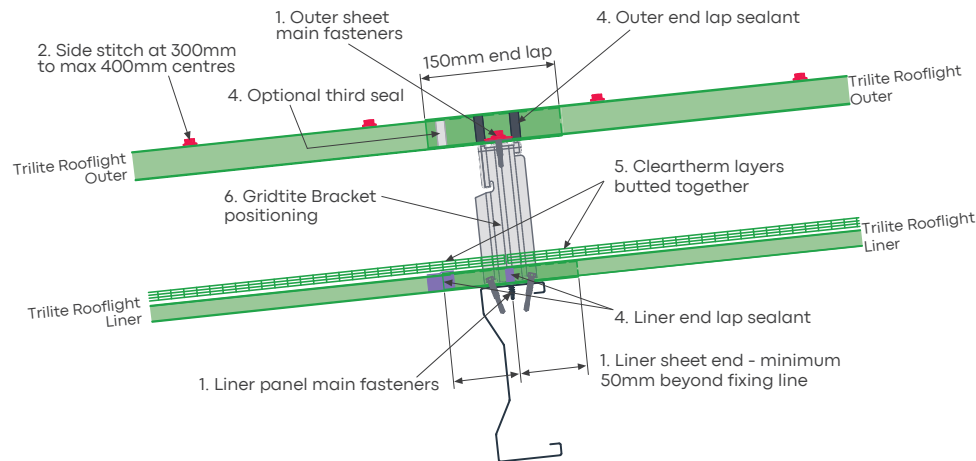
Down Slope End Lap - Rooflight Over Cadding



Up Slope End Lap - Cladding Over Rooflight



End Lap - Rooflight To Rooflight

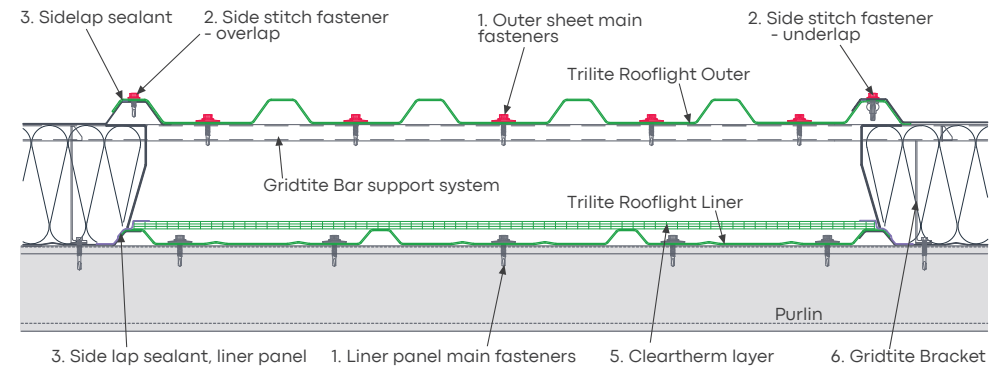


*Minimum Roof Pitch

Trilite GRP Rooflights are recommended for a minimum design pitch of 5.5 degrees, to ensure a minimum finished roof pitch of 4 degrees after allowing for tolerances and on site variations in accordance with BS5427 "Code of practice for the use of profiled sheet for roof and wall cladding on buildings" (see BS5427:2016 section 5.1.3). If these rooflights are fitted at lower than 4° finished roof pitch, there will not be any detrimental effect on the rooflight sheet itself, but the risk increases of leaks at end laps or fixings occurring due to small variations in installation details (see BS5427, Note 3 to 5.1.3). Heavyweight Trilite rooflights are more rigid, providing more even compression of sealants and less localised deflection around fasteners, thus reducing risk of leaks at end laps or fixings.

Trilite Ultra & Safelight Installation Guide.

Main Fasteners - End Lap & Intermediate Purlin



General Arrangement.

Generally, Gridtite Brackets are positioned outside of the area of rooflight, necessitating the use of 3m Gridtite Bars. Cleartherm sheets are normally fitted in standard 6m sheet lengths butted up to one another for lowest cost. (Butt joints between sheets do not need to be aligned with purlins or laps in the liner or outer sheet). Alternatively, Gridtite Brackets can be positioned as normal within the rooflight area (avoiding the need for longer Gridtite Bars). In this case Cleartherm sheets should be fitted in single span lengths, butted together along the line of the spacer bar with the end of the sheet notched to clear the Gridtite Bracket.

Fixing Sequence.

Cleartherm is laid and secured over the liner panel (after the liner has been fitted as normal); the Gridtite Bar System, fillers and/or flashings to stop insulation migration are then fitted as normal. Note: Cleartherm sheets should not be exposed to weather before the outer sheet is fitted. The Cleartherm sheet can also be installed at the same time as the outer sheet, simply sliding into position under the Gridtite Bars; limiting sheet lengths to double spans may assist with this.

1

Main fasteners.

Stainless steel Ø5.5mm with min Ø29mm sealing washer with soft bonded seal, typically poppy red. Min 5 fasteners per purlin, fitted in the trough, max 200mm apart. For profiles >200mm pitch use two fasteners per trough, located either side of the main corrugations.

Outer Sheet - fasteners located in the centre of the top flange of the Gridtite Bar, zed spacer or equivalent.

Liner Panel - The panel should extend a min of 50mm beyond the fixing line at each end after allowing for on site tolerances. Fixed Gridtite Brackets can be regarded as a single fastener.

See over for typical fastener references.

2

Side Stitch Fasteners.

Brett Martin Daylight Systems recommend GRP overlaps the metal on both sides if possible to reduce the cost and number of fastener types on site, and improve ease of installation.

Stainless steel side stitch fastener with Ø16/19mm sealing washer, typically poppy red; fix at max 600mm centres and evenly spaced about all end laps - not through the end lap joint. If it is necessary for the GRP to underlap the metal on one side, use expanding rubber bolts.

See over for typical fastener references.

3

Side Lap Sealant.

Outer Sheet - One run of Class A 6x5mm cross linked butyl mastic, pale coloured, positioned on the crown of the sidelap corrugation, on the weather side of the side stitch fasteners.

Liner Panel - Both sides should lap over the adjacent metal sheet. Apply 50mm wide film backed butyl tape over laps to prevent opening, improve resistance to impact, airtightness and vapour control.

4

End Lap Sealant.

Outer Sheet - Two beads of Class A Ø8mm cross linked butyl mastic, pale coloured, positioned max 25mm above and below fixing line. If a third seal at the tail of the end lap is required, gun grade silicone (ISO11600-F-25LM) should be used.

Liner Panel - One bead of Class A 6x5mm cross linked butyl mastic, pale coloured, position inside the lap, along the line of the fasteners or alternatively with 50mm wide film backed butyl tape over the lap.

5

Cleartherm layer.

Simply secured with 50mm film backed butyl tape along each side lap. Alternatively, 9x3mm sealant can be applied to the crown of each side corrugation of the liner panel and the Cleartherm layer placed on top.

6

Spacer bar bracket positioning.

Generally, spacer brackets are positioned outside of the area of rooflight, necessitating the use of 3m Gridtite Bars. Alternatively, Gridtite Brackets can be positioned as normal within the rooflight area (avoiding the need for longer Gridtite Bars), but this will require Cleartherm sheets to be fitted in single span lengths, butted together along the line of the Gridtite Bar with the end of the sheet notched to clear the Gridtite Bracket.

Correct installation of rooflights is important to ensure they achieve the correct level of safety performance and give long term weather tightness.

For full installation guide please contact our technical department.

Recommended Fixing Point Fasteners.

Main Fasteners – Outer Sheet	04E53SCT435S29
Main Fasteners Line Panel	SD435S29
Side Stitch Fasteners – Overlapping	04E53SCTS25S19
Side Stitch Fasteners - Underlapping	04E53LAPLOXS19



MINIMUM ROOF PITCH
Minimum design roof pitch 5.5° (finished roof pitch 4°)



CORRECT HANDLING OF GRP IS CRITICAL
- full guidance given in TB154

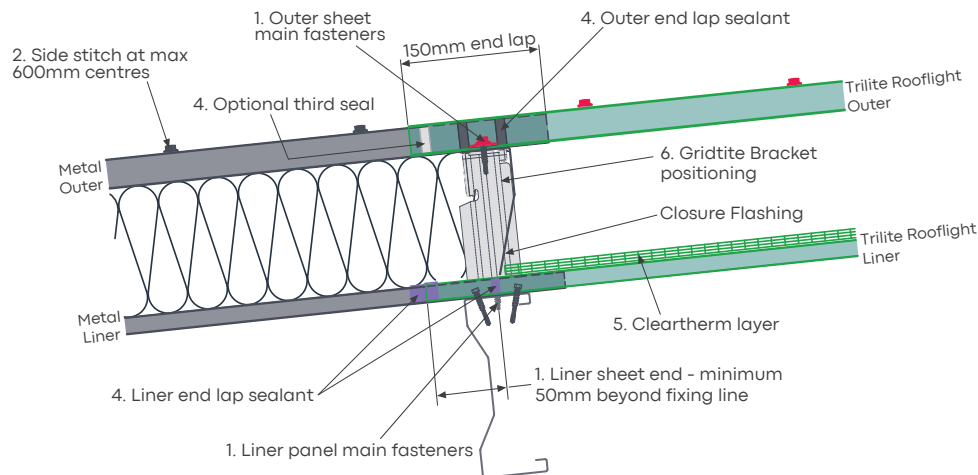


DO NOT
over drive fasteners

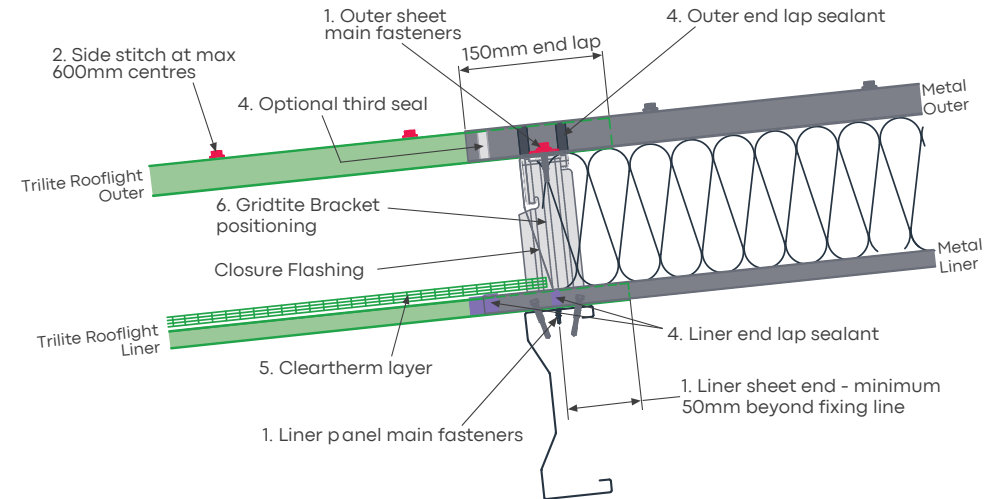


ONLY
use good quality assured fasteners

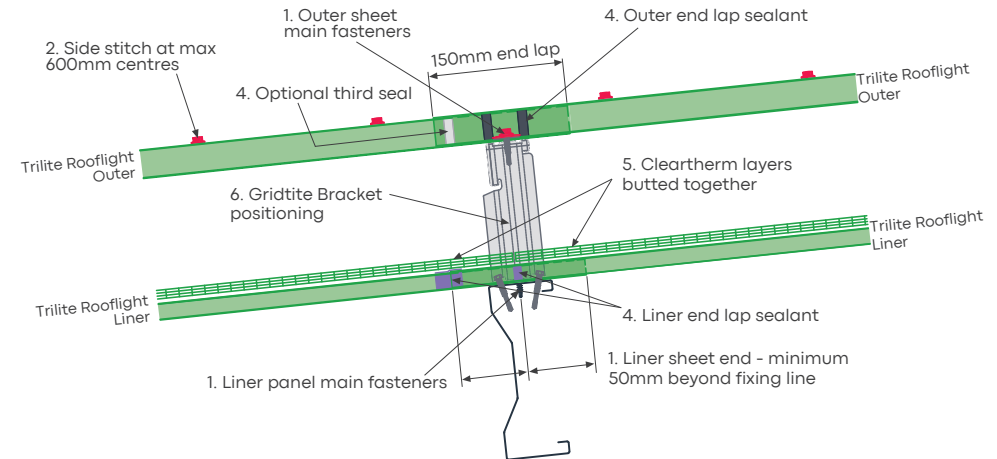
Down Slope End Lap - Rooflight Over Cladding



Up Slope End Lap - Cladding Over Rooflight



End Lap - Rooflight To Rooflight



*Minimum Roof Pitch

Trilite GRP Rooflights are recommended for a minimum a minimum design pitch of 5.5 degrees, to ensure a minimum finished roof pitch of 4 degrees after allowing for tolerances and on site variations in accordance with BS5427 'Code of practice for the use of profiled sheet for roof and wall cladding on buildings (see BS5427:2016 section 5.1.3). If these rooflights are fitted at lower than 4° finished roof pitch, there will not be any detrimental effect on the rooflight sheet itself, but the risk increases of leaks at end laps or fixings occurring due to small variations in installation details (see BS5427, Note 3 to 5.1.3). Heavyweight Trilite rooflights are more rigid, providing more even compression of sealants and less localised deflection around fasteners, thus reducing risk of leaks at end laps or fixings.

Rooflights.

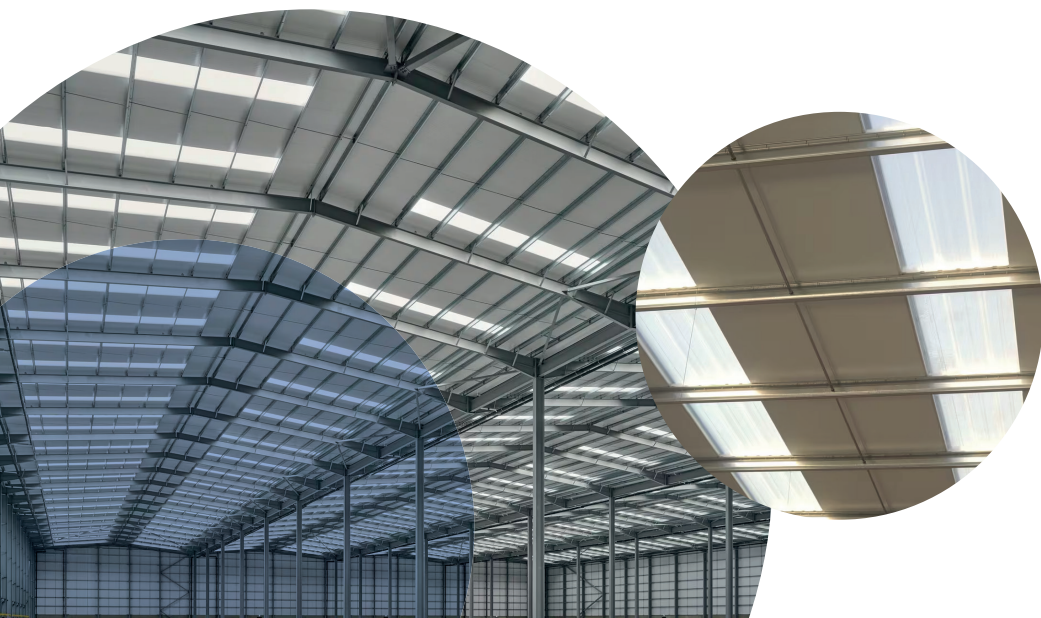
Industrial and agricultural rooflights for metal and fibre cement clad buildings

Fixing Point as key distributors of Brett Martin Daylight Systems (BMDS) rooflights range supplies 'Energysaver' Factory Assembled Insulated Rooflights (FAIRs) for composite panel clad buildings to suit virtually all current profiles and manufacturers and many obsolete ones too for refurbishment and repair projects.

FAIRs.

Factory Assembled Insulating Rooflights

- ✓ Range of GRP sheet component products available; Trilite GRP and Safelight – with varying performance options
- ✓ Profiles to match any composite roof panel
- ✓ U value options to suit project requirement, from 1.9W/m²K down to 0.9W/m²K
- ✓ Optional 'Diamond' long life surface gives protection against weathering, UV degradation and chemical attack
- ✓ Profiled underlap strip as standard in all Energysavers
- ✓ Packaging recyclable on site
- ✓ Lengths up to 8m available as standard



Trilite 24 EnergySaver FAIRs.

Factory Assembled Insulating Rooflights

Trilite 24 Energysaver FAIRs are Factory Assembled Insulating Rooflights specifically intended for use with composite panel cladding systems and are available to match most systems.

They comprise of a corrugated translucent GRP outer; intermediate layer and flat GRP liner bonded together with Hardpak internal spacers positioned to align with the purlins when they are installed. The outer weighs 2.4 kg/m², and is approximately 1.3mm thick. Typically supplied with an outer fire rating of SAB to BS476 part 3 and liner of Class 1 to BS476 part 7. They have full BBA approval certified under 04/4114.



Durability.

Trilite 24 Energysaver FAIRs have a life span in excess of 25 years. They have Superlife™ surface protection and UV stabilised resin system to protect against discolouration (yellowing)¹ and degradation which would otherwise be caused by UV exposure and will prevent significant discolouration for at least 20 years.

Safety Requirements / Non-Fragility.

Trilite 24 Energysaver FAIRs have a life span in excess of 25 years. They have Superlife™ surface protection and UV stabilised resin system to protect against discolouration (yellowing)¹ and degradation which would otherwise be caused by UV exposure and will prevent significant discolouration for at least 20 years.

Rooflight Assembly	Classification ²	Expected period of non-fragility ³
Trilite 24 FAIR	Class B	When new ⁴

PLEASE REFER TO RA (FORMERLY NARM) NT003 FOR FULL DETAILS & CONDITIONS

Trilite 24 Energysaver FAIRs when fully fixed will resist loads typically created by foot-traffic or a falling person without failure, although such impacts may result in damage. Appropriate precautions should be used when installing and accessing these rooflights to ensure they are not subjected to impact or foot traffic. Damaged rooflights, whether from impact, foot traffic or other cause, must be replaced.

Composition & Appearance.

Trilite 24 GRP is manufactured from polyester based resins (containing UV inhibitors, fire retardant and process additives) and chopped strand glass fibre reinforcement, with 33% glass content and are classified CE24⁵. Outer sheets also incorporate our Superlife UV protective surface and are classified CE24E⁵.

Coloured Sheet.

Trilite 24 Energysaver FAIRs are available as translucent coloured sheet for specific applications⁶.

¹ performance proven by accelerated weathering test on rooflight outer sheets (typically SAB class 3 grade), showing delta E less than 10 and light transmission reduced by less than 12% after 3000 hours exposure to QUV testing, comprising cycles of 4 hours of UVA340nm at 60°C and 4 hours condensation at 40°C.

² when installed at purlin centres of 0.6 - 2.0m with a roof system which has been determined (without rooflights) to achieve an equal or better non-fragility classification.

³ when all other components have been specified accordingly and it has been demonstrated that the roof system (without rooflights) will retain the same non-fragile classification for the same period.

Design Features.

All Energysaver FAIRs include Hardpak fillers at each end and every intermediate purlin position, providing much greater support for fasteners to ensure more reliable installation. Hardpak fillers have a bulk compressive modulus of 8MPa, ensuring an 80mm deep filler will compress by less than 0.2mm when subjected to the weight of a 90kg man (applied evenly).

All Energysaver FAIRs include Underlap Strip as standard, specially profiled to match the underlap corrugation and fitted in a single piece to match the full length of the FAIR, allowing use of standard sidelap fasteners to ensure more reliable installation on site.

All Energysaver FAIRs are supplied in Ecopac packaging, allowing outdoor storage whilst minimizing use of packaging materials reducing waste and enhancing sustainability.

Manufacture.

Trilite 24 GRP is manufactured to EN 1013 under ISO 9001 Quality Management System.

Tolerances.

Sheet weight:	±10%
Sheet length:	-0 +20mm (for sheets <2.5m) -0% +0.8% (for sheets >2.5m)
Cover width:	±0.8%
Squareness:	0.5% of cover width

Installation.

See detailed installation instructions for products further on in this brochure.

Maintenance, Handling & Storage.

For full maintenance, handling and site storage details see separate data sheet - COSHH Data Sheet 02.

⁴ the installed assembly may remain non-fragile in the long term but a range of external factors can affect non-fragility, and deterioration of any aspect of the installation may render the installed assembly fragile at any point, typically after 5-20 years, even if there has been no deterioration of the rooflight sheets themselves.

⁵ as defined in National Annex to BS EN 1013.

⁶ please note: some colour pigments can fade over time particularly in translucent sheets, and long term colour stability cannot be guaranteed; please consult BMDs for full details.

Trilite 24 EnergySaver FAIRs.

Factory Assembled Insulating Rooflights

Fire Classifications of Trilite GRP rooflights

The table below clarifies which fire classifications Trilite GRP rooflights achieve by rooflight grade:

Rooflight Grade	Rooflight Fire Classification					
	Roof Covering		Internal Lining			
	National classification	European classification	National classification			European classification
	(BS 476-3)	(EN 13501-5)	(BS 476-7)	(BS 476-6)	BS 2782-0 Method 508A	(EN 13501-1)
Trilite - SAB3	SAB	B _{ROOF} (t4)	Class 3	NPD	NPD	NPD
Trilite - SAA1	SAA	B _{ROOF} (t4)	Class 1	NPD	TP(a)	NPD
Trilite - SAA0 1.8 kg/m ²	SAA	B _{ROOF} (t4)	Class 1	Class 0	NPD	NPD

NPD - No Performance Declared

Refer to Technical Bulletin 106 or Rooflight Association Quickguides for further details on fire classification requirements.

The fire classification of Trilite GRP rooflight sheets is printed on each rooflight; in addition, a coloured tracer is incorporated to identify the fire rating:

- SAB3 are identified with a blue tracer
- SAA1 are identified with a red tracer
- SAA0 are identified with a red and yellow tracer

Transmission Values

Rooflight Application	Ur Value* (horizontal)	U Value (vertical)	Tv Visible Light Transmission	G Value Total Solar Transmittance	Shading Coefficient
Energysaver 2.1	2.1 W/m ² K	1.9 W/m ² K	0.64	0.59	0.67
Energysaver 1.5	1.5 W/m ² K	1.3 W/m ² K	0.58	0.55	0.63
Energysaver 1.2 **	1.2 W/m ² K	1.1 W/m ² K	0.56	0.47	0.55
Energysaver 1.1	1.1 W/m ² K	1.0 W/m ² K	0.52	0.49	0.57
Energysaver 0.9 **	0.9 W/m ² K	0.9 W/m ² K	0.51	0.37	0.43

* Thermal performance now assessed in the horizontal plane as required by UK Building Regulations, and now defined as a Ur Value (to denote horizontal plane assessment); surface area ratio is 1; see Technical Bulletin 434 for further details.

** Not covered by BBA certification.

Physical Properties

TENSILE STRENGTH: 90 MPa

FLEXURAL STRENGTH: 180MPa

BARCOL HARDNESS: 40 - 50

FIXING PULL-OUT LOAD: 29mm washer: 930 N

COEFFICIENT OF LINEAR EXPANSION: 22 X 10⁻⁵/°C

SERVICE TEMPERATURE: -20°C TO 80°C

FLEXURAL MODULUS: 6600 MPa

GLASS CONTENT: 33%

Trilite 30 EnergySaver FAIRs.

Factory Assembled Insulating Rooflights

Trilite 30 Energysaver FAIRs are Factory Assembled Insulating Rooflights specifically intended for use with composite panel cladding systems and are available to match most systems.

They comprise of a corrugated translucent GRP outer; intermediate layer and flat GRP liner bonded together with Hardpak internal spacers positioned to align with the purlins when they are installed. The outer weighs 3.0 kg/m², and is approximately 1.7mm thick. Typically supplied with an outer fire rating of SAB to BS476 part 3 and liner of Class 1 to BS476 part 7. They have full BBA approval certified under 04/4114.



Durability.

Trilite 30 Energysaver FAIRs have a life span in excess of 25 years. They have Superlife™ surface protection and UV stabilised resin system to protect against discolouration (yellowing) and degradation which would otherwise be caused by UV exposure and will prevent significant discolouration for at least 20 years.

Safety Requirements / Non-Fragility.

Trilite 30 Energysaver FAIRs achieve Class B non-fragility to ACR[M]001 when fully installed. They meet standard industry guidelines (as defined in Rooflight Association, formerly NARM, Technical Document NTD03):

Rooflight Assembly	Classification ²	Expected period of non-fragility ³
Trilite 30 FAIR	Class B	25 Years

PLEASE REFER TO RA (FORMERLY NARM) NTD03 FOR FULL DETAILS & CONDITIONS

Trilite 30 Energysaver FAIRs when fully fixed will resist loads typically created by foot-traffic or a falling person without failure, although such impacts may result in damage. Appropriate precautions should be used when installing and accessing these rooflights to ensure they are not subjected to impact or foot traffic. Damaged rooflights, whether from impact, foot traffic or other cause, must be replaced.

Composition & Appearance.

Trilite 30 GRP is manufactured from polyester based resins (containing UV inhibitors, fire retardant and process additives) and chopped strand glass fibre reinforcement, with 33% glass content and are classified CE30⁴. Outer sheets also incorporate our Superlife UV protective surface and are classified CE30E⁴.

Coloured Sheet.

Trilite 30 Energysaver FAIRs are available as translucent coloured sheet for specific applications⁵.

¹ performance proven by accelerated weathering test on rooflight outer sheets (typically SAB class 3 grade), showing delta E less than 10 and light transmission reduced by less than 12% after 3000 hours exposure to QUV testing, comprising cycles of 4 hours of UVA340nm at 60°C and 4 hours condensation at 40°C.

² when installed at purlin centres of 0.6 - 2.0m with a roof system which has been determined (without rooflights) to achieve an equal or better non-fragility classification.

Design Features.

All Energysaver FAIRs include Hardpak fillers at each end and every intermediate purlin position, providing much greater support for fasteners to ensure more reliable installation. Hardpak fillers have a bulk compressive modulus of 8MPa, ensuring an 80mm deep filler will compress by less than 0.2mm when subjected to the weight of a 90kg man (applied evenly).

All Energysaver FAIRs include Underlap Strip as standard, specially profiled to match the underlap corrugation and fitted in a single piece to match the full length of the FAIR, allowing use of standard sidelap fasteners to ensure more reliable installation on site.

All Energysaver FAIRs are supplied in Ecopac packaging, allowing outdoor storage whilst minimizing use of packaging materials reducing waste and enhancing sustainability.

Manufacture.

Trilite 30 GRP is manufactured to EN 1013 under ISO 9001 Quality Management System.

Tolerances.

Sheet weight:	±10%
Sheet length:	-0 +20mm (for sheets <2.5m) -0% +0.8% (for sheets >2.5m)
Cover width:	± 0.8%
Squareness:	0.5% of cover width

Installation.

See detailed installation instructions for products further on in this brochure.

Maintenance, Handling & Storage.

For full maintenance, handling and site storage details see separate data sheet - COSHH Data Sheet 02.

³ when all other components have been specified accordingly and it has been demonstrated that the roof system (without rooflights) will retain the same non-fragile classification for the same period.

⁴ as defined in National Annex to BS EN 1013.

⁵ please note: some colour pigments can fade over time particularly in translucent sheets, and long term colour stability cannot be guaranteed; please consult BMDS for full details.

Trilite 30 EnergySaver FAIRs.

Factory Assembled Insulating Rooflights

Fire Classifications of Trilite GRP rooflights

The table below clarifies which fire classifications Trilite GRP rooflights achieve by rooflight grade:

Rooflight Grade	Rooflight Fire Classification					
	Roof Covering		Internal Lining			
	National classification	European classification	National classification			European classification
	(BS 476-3)	(EN 13501-5)	(BS 476-7)	(BS 476-6)	BS 2782-0 Method 508A	(EN 13501-1)
Trilite - SAB3	SAB	B _{ROOF} (t4)	Class 3	NPD	NPD	NPD
Trilite - SAA1	SAA	B _{ROOF} (t4)	Class 1	NPD	TP(a)	NPD
Trilite - SAA0 1.8 kg/m ²	SAA	B _{ROOF} (t4)	Class 1	Class 0	NPD	NPD

NPD - No Performance Declared

Refer to Technical Bulletin 106 or Rooflight Association Quickguides for further details on fire classification requirements.

The fire classification of Trilite GRP rooflight sheets is printed on each rooflight; in addition, a coloured tracer is incorporated to identify the fire rating:

- SAB3 are identified with a blue tracer
- SAA1 are identified with a red tracer
- SAA0 are identified with a red and yellow tracer

Transmission Values

Rooflight Application	Ur Value* (horizontal)	U Value (vertical)	Tv Visible Light Transmission	G Value Total Solar Transmittance	Shading Coefficient
Energysaver 2.1	2.1 W/m ² K	1.9 W/m ² K	0.60	0.55	0.63
Energysaver 1.5	1.5 W/m ² K	1.3 W/m ² K	0.55	0.51	0.58
Energysaver 1.2 **	1.2 W/m ² K	1.1 W/m ² K	0.54	0.46	0.53
Energysaver 1.1	1.1 W/m ² K	1.0 W/m ² K	0.49	0.45	0.52
Energysaver 0.9 **	0.9 W/m ² K	0.9 W/m ² K	0.49	0.35	0.41

* Thermal performance now assessed in the horizontal plane as required by UK Building Regulations, and now defined as a Ur Value (to denote horizontal plane assessment); surface area ratio is 1; see Technical Bulletin 434 for further details.

** Not covered by BBA certification.

Physical Properties

TENSILE STRENGTH: 90 MPa
FLEXURAL STRENGTH: 180MPa
BARCOL HARDNESS: 40 - 50

FIXING PULL-OUT LOAD: 29mm washer: 1160 N
COEFFICIENT OF LINEAR EXPANSION: 22 X 10⁻⁵/°C
SERVICE TEMPERATURE: -20°C TO 80°C

FLEXURAL MODULUS: 6600 MPa
GLASS CONTENT: 33%

Trilite Ultra 36 EnergySaver FAIRs.

Factory Assembled Insulating Rooflights

Trilite 36 Energysaver FAIRs are Factory Assembled Insulating Rooflights specifically intended for use with composite panel cladding systems and are available to match most systems.

They comprise of a corrugated translucent GRP outer; intermediate layer and flat GRP liner bonded together with Hardpak internal spacers positioned to align with the purlins when they are installed. The outer weighs 3.6 kg/m², and is approximately 2.0mm thick. Typically supplied with an outer fire rating of SAB to BS476 part 3 and liner of Class 1 to BS476 part 7. They have full BBA approval certified under 04/4114.



Durability.

Trilite 36 Energysaver FAIRs have a life span in excess of 30 years. They have Superlife™ surface protection and UV stabilised resin system to protect against discolouration (yellowing) and degradation which would otherwise be caused by UV exposure and will prevent significant discolouration for at least 20 years.

Safety Requirements / Non-Fragility.

Trilite 36 Energysaver FAIRs achieve Class B non-fragility to ACR[M]001 when fully installed. They exceed standard industry guidelines (as defined in Rooflight Association, formerly NARM, Technical Document NTD03):

Rooflight Assembly	Classification ²	Expected period of non-fragility ³
Trilite 36 FAIR	Class B	25 Years

PLEASE REFER TO RA (FORMERLY NARM) NTD03 FOR FULL DETAILS & CONDITIONS

Trilite 36 Energysaver FAIRs when fully fixed will resist loads typically created by foot-traffic or a falling person without failure, although such impacts may result in minor damage. Appropriate precautions should be used when installing and accessing these rooflights to ensure they are not subjected to impact or foot traffic. Damaged rooflights, whether from impact, foot traffic or other cause, must be replaced.

Composition & Appearance.

Trilite 36 GRP is manufactured from polyester based resins (containing UV inhibitors, fire retardant and process additives) and chopped strand glass fibre reinforcement, with 33% glass content and are classified CE36⁴. Outer sheets also incorporate our Superlife UV protective surface and are classified CE36E⁴.

Coloured Sheet.

Trilite 30 Energysaver FAIRs are available as translucent coloured sheet for specific applications⁵.

¹ performance proven by accelerated weathering test on rooflight outer sheets (typically SAB class 3 grade), showing delta E less than 10 and light transmission reduced by less than 12% after 3000 hours exposure to QUV testing, comprising cycles of 4 hours of UVA340nm at 60°C and 4 hours condensation at 40°C.

² when installed at purlin centres of 0.6 - 2.0m with a roof system which has been determined (without rooflights) to achieve an equal or better non-fragility classification.

Design Features.

All Energysaver FAIRs include Hardpak fillers at each end and every intermediate purlin position, providing much greater support for fasteners to ensure more reliable installation. Hardpak fillers have a bulk compressive modulus of 8MPa, ensuring an 80mm deep filler will compress by less than 0.2mm when subjected to the weight of a 90kg man (applied evenly).

All Energysaver FAIRs include Underlap Strip as standard, specially profiled to match the underlap corrugation and fitted in a single piece to match the full length of the FAIR, allowing use of standard sidelap fasteners to ensure more reliable installation on site.

All Energysaver FAIRs are supplied in Ecopac packaging, allowing outdoor storage whilst minimizing use of packaging materials reducing waste and enhancing sustainability.

Manufacture.

Trilite 36 GRP is manufactured to EN 1013 under ISO 9001 Quality Management System.

Tolerances.

Sheet weight:	±10%
Sheet length:	-0 +20mm (for sheets <2.5m) -0% +0.8% (for sheets >2.5m)
Cover width:	± 0.8%
Squareness:	0.5% of cover width

Installation.

See detailed installation instructions for products further on in this brochure.

Maintenance, Handling & Storage.

For full maintenance, handling and site storage details see separate data sheet - COSHH Data Sheet 02.

³ when all other components have been specified accordingly and it has been demonstrated that the roof system (without rooflights) will retain the same non-fragile classification for the same period.

⁴ as defined in National Annex to BS EN 1013.

⁵ please note: some colour pigments can fade over time particularly in translucent sheets, and long term colour stability cannot be guaranteed; please consult BMDS for full details.

Trilite Ultra 36 EnergySaver FAIRs.

Factory Assembled Insulating Rooflights

Fire Classifications of Trilite GRP rooflights

The table below clarifies which fire classifications Trilite GRP rooflights achieve by rooflight grade:

Rooflight Grade	Rooflight Fire Classification					
	Roof Covering		Internal Lining			
	National classification	European classification	National classification			European classification
	(BS 476-3)	(EN 13501-5)	(BS 476-7)	(BS 476-6)	BS 2782-0 Method 508A	(EN 13501-1)
Trilite - SAB3	SAB	B _{ROOF} (t4)	Class 3	NPD	NPD	NPD
Trilite - SAA1	SAA	B _{ROOF} (t4)	Class 1	NPD	TP(a)	NPD
Trilite - SAA0 1.8 kg/m ²	SAA	B _{ROOF} (t4)	Class 1	Class 0	NPD	NPD

NPD - No Performance Declared

Refer to Technical Bulletin 106 or Rooflight Association Quickguides for further details on fire classification requirements.

The fire classification of Trilite GRP rooflight sheets is printed on each rooflight; in addition, a coloured tracer is incorporated to identify the fire rating:

- SAB3 are identified with a blue tracer
- SAA1 are identified with a red tracer
- SAA0 are identified with a red and yellow tracer

Transmission Values

Rooflight Application	Ur Value* (horizontal)	U Value (vertical)	Tv Visible Light Transmission	G Value Total Solar Transmittance	Shading Coefficient
Energysaver 2.1	2.1 W/m ² K	1.9 W/m ² K	0.60	0.55	0.63
Energysaver 1.5	1.5 W/m ² K	1.3 W/m ² K	0.55	0.51	0.58
Energysaver 1.2 **	1.2 W/m ² K	1.1 W/m ² K	0.52	0.44	0.51
Energysaver 1.1	1.1 W/m ² K	1.0 W/m ² K	0.49	0.45	0.52
Energysaver 0.9 **	0.9 W/m ² K	0.9 W/m ² K	0.47	0.34	0.39

* Thermal performance now assessed in the horizontal plane as required by UK Building Regulations, and now defined as a Ur Value (to denote horizontal plane assessment); surface area ratio is 1; see Technical Bulletin 434 for further details.

** Not covered by BBA certification.

Physical Properties

TENSILE STRENGTH: 90 MPa	FIXING PULL-OUT LOAD: 29mm washer: 1400 N	FLEXURAL MODULUS: 6600 MPa
FLEXURAL STRENGTH: 180MPa	COEFFICIENT OF LINEAR EXPANSION: 22 X 10 ⁻⁵ /°C	GLASS CONTENT: 33%
BARCOL HARDNESS: 40 - 50	SERVICE TEMPERATURE: -20°C TO 80°C	

Trilite Ultra 45 EnergySaver FAIRs.

Factory Assembled Insulating Rooflights

Trilite 45 Energysaver FAIRs are Factory Assembled Insulating Rooflights specifically intended for use with composite panel cladding systems and are available to match most systems.

They comprise of a corrugated translucent GRP outer; intermediate layer and flat GRP liner bonded together with Hardpak internal spacers positioned to align with the purlins when they are installed. The outer weighs 4.5 kg/m², and is approximately 2.5mm thick. Typically supplied with an outer fire rating of SAB to BS476 part 3 and liner of Class 1 to BS476 part 7. They have full BBA approval certified under 04/4114.



Durability.

Trilite 45 Energysaver FAIRs have a life span in excess of 30 years. They have Superlife™ surface protection and UV stabilised resin system to protect against discolouration (yellowing) and degradation which would otherwise be caused by UV exposure and will prevent significant discolouration for at least 20 years.

Safety Requirements / Non-Fragility.

Trilite 45 Energysaver FAIRs achieve Class B non-fragility to ACR[M]001 when fully installed. They exceed standard industry guidelines (as defined in Rooflight Association, formerly NARM, Technical Document NTD03):

Rooflight Assembly	Classification ²	Expected period of non-fragility ³
Trilite 45 FAIR	Class B	25 Years

PLEASE REFER TO RA (FORMERLY NARM) NTD03 FOR FULL DETAILS & CONDITIONS

Trilite 45 Energysaver FAIRs when fully fixed will resist loads typically created by foot-traffic or a falling person without damage. Appropriate precautions should be used when installing and accessing these rooflights to ensure they are not subjected to impact or foot traffic. Damaged rooflights, whether from impact, foot traffic or other cause, must be replaced.

Composition & Appearance.

Trilite 45 GRP is manufactured from polyester based resins (containing UV inhibitors, fire retardant and process additives) and chopped strand glass fibre reinforcement, with 33% glass content and are classified CE45⁴. Outer sheets also incorporate our Superlife UV protective surface and are classified CE45E⁴.

Coloured Sheet.

Trilite 45 Energysaver FAIRs are available as translucent coloured sheet for specific applications⁵.

¹ performance proven by accelerated weathering test on rooflight outer sheets (typically SAB class 3 grade), showing delta E less than 10 and light transmission reduced by less than 12% after 3000 hours exposure to QUV testing, comprising cycles of 4 hours of UVA340nm at 60°C and 4 hours condensation at 40°C.

² when installed at purlin centres of 0.6 - 2.0m with a roof system which has been determined (without rooflights) to achieve an equal or better non-fragility classification.

Design Features.

All Energysaver FAIRs include Hardpak fillers at each end and every intermediate purlin position, providing much greater support for fasteners to ensure more reliable installation. Hardpak fillers have a bulk compressive modulus of 8MPa, ensuring an 80mm deep filler will compress by less than 0.2mm when subjected to the weight of a 90kg man (applied evenly).

All Energysaver FAIRs include Underlap Strip as standard, specially profiled to match the underlap corrugation and fitted in a single piece to match the full length of the FAIR, allowing use of standard sidelap fasteners to ensure more reliable installation on site.

All Energysaver FAIRs are supplied in Ecopac packaging, allowing outdoor storage whilst minimizing use of packaging materials reducing waste and enhancing sustainability.

Manufacture.

Trilite 45 GRP is manufactured to EN 1013 under ISO 9001 Quality Management System.

Tolerances.

Sheet weight:	±10%
Sheet length:	-0 +20mm (for sheets <2.5m) -0% +0.8% (for sheets >2.5m)
Cover width:	± 0.8%
Squareness:	0.5% of cover width

Installation.

See detailed installation instructions for products further on in this brochure.

Maintenance, Handling & Storage.

For full maintenance, handling and site storage details see separate data sheet - COSHH Data Sheet Q2.

³ when all other components have been specified accordingly and it has been demonstrated that the roof system (without rooflights) will retain the same non-fragile classification for the same period.

⁴ as defined in National Annex to BS EN 1013.

⁵ please note: some colour pigments can fade over time particularly in translucent sheets, and long term colour stability cannot be guaranteed; please consult BMDS for full details.

Trilite Ultra 45 EnergySaver FAIRs.

Factory Assembled Insulating Rooflights

Fire Classifications of Trilite GRP rooflights

The table below clarifies which fire classifications Trilite GRP rooflights achieve by rooflight grade:

Rooflight Grade	Rooflight Fire Classification					
	Roof Covering		Internal Lining			
	National classification	European classification	National classification			European classification
	(BS 476-3)	(EN 13501-5)	(BS 476-7)	(BS 476-6)	BS 2782-0 Method 508A	(EN 13501-1)
Trilite - SAB3	SAB	B _{ROOF} (t4)	Class 3	NPD	NPD	NPD
Trilite - SAA1	SAA	B _{ROOF} (t4)	Class 1	NPD	TP(a)	NPD
Trilite - SAA0 1.8 kg/m ²	SAA	B _{ROOF} (t4)	Class 1	Class 0	NPD	NPD

NPD - No Performance Declared

Refer to Technical Bulletin 106 or Rooflight Association Quickguides for further details on fire classification requirements.

The fire classification of Trilite GRP rooflight sheets is printed on each rooflight; in addition, a coloured tracer is incorporated to identify the fire rating:

- SAB3 are identified with a blue tracer
- SAA1 are identified with a red tracer
- SAA0 are identified with a red and yellow tracer

Transmission Values

Rooflight Application	Ur Value* (horizontal)	U Value (vertical)	Tv Visible Light Transmission	G Value Total Solar Transmittance	Shading Coefficient
Energysaver 2.1	2.1 W/m ² K	1.9 W/m ² K	0.56	0.52	0.59
Energysaver 1.5	1.5 W/m ² K	1.3 W/m ² K	0.51	0.46	0.53
Energysaver 1.2 **	1.2 W/m ² K	1.1 W/m ² K	0.50	0.42	0.49
Energysaver 1.1	1.1 W/m ² K	1.0 W/m ² K	0.46	0.41	0.47
Energysaver 0.9 **	0.9 W/m ² K	0.9 W/m ² K	0.45	0.32	0.37

* Thermal performance now assessed in the horizontal plane as required by UK Building Regulations, and now defined as a Ur Value (to denote horizontal plane assessment); surface area ratio is 1; see Technical Bulletin 434 for further details.

** Not covered by BBA certification.

Physical Properties

TENSILE STRENGTH: 90 MPa	FIXING PULL-OUT LOAD: 29mm washer: 1710 N	FLEXURAL MODULUS: 6600 MPa
FLEXURAL STRENGTH: 180MPa	COEFFICIENT OF LINEAR EXPANSION: 22 X 10 ⁻⁵ /°C	GLASS CONTENT: 33%
BARCOL HARDNESS: 40 - 50	SERVICE TEMPERATURE: -20°C TO 80°C	

Safelight EnergySaver FAIRs.

Factory Assembled Insulating Rooflights

Safelight Energysaver FAIRs are Factory Assembled Insulating Rooflights specifically intended for use with composite panel cladding systems and are available to match most systems. Safelight is suitable for buildings in particularly aggressive environments. Please refer to technical with proposed application details.

They comprise of a corrugated translucent GRP outer; intermediate layer and flat GRP liner bonded together with Hardpak internal spacers positioned to align with the purlins when they are installed. The outer weighs 5.5 kg/m², and is approximately 3.0mm thick. Typically supplied with an outer fire rating of SAB to BS476 part 3 and liner of Class 1 to BS476 part 7. They have full BBA approval certified under 04/4114.



Durability.

Safelight Energysaver FAIRs have a life span in excess of 30 years. They have Diamond™ surface protection and UV stabilised resin system to protect against discolouration (yellowing)¹ and degradation which would otherwise be caused by UV exposure and will prevent significant discolouration for at least 30 years.

Safety Requirements / Non-Fragility.

Safelight Energysaver FAIRs achieve Class B nonfragility to ACR[M]001 when fully installed. They exceed standard industry guidelines (as defined in Rooflight Association, formerly NARM, Technical Document NTD03):

Rooflight Assembly	Classification ²	Expected period of non-fragility ³
Safelight FAIR	Class B	30 Years

PLEASE REFER TO RA (FORMERLY NARM) NTD03 FOR FULL DETAILS & CONDITIONS

Safelight Energysaver FAIRs when fully fixed will resist loads typically created by foot-traffic or a falling person without failure, although such impacts may result in damage. Appropriate precautions should be used when installing and accessing these rooflights to ensure they are not subjected to impact or foot traffic. Damaged rooflights, whether from impact, foot traffic or other cause, must be replaced.

Composition & Appearance.

Safelight GRP is manufactured from polyester based resins (containing UV inhibitors, fire retardant and process additives) and chopped strand glass fibre reinforcement, with 33% glass content and are classified CE55⁴. Outer sheets also incorporate our Superlife UV protective surface and are classified CE55E⁴.

Coloured Sheet.

Safelight Energysaver FAIRs are available as translucent coloured sheet for specific applications⁵.

¹ performance proven by accelerated weathering test on rooflight outer sheets (typically SAB class 3 grade), showing delta E less than 5 and light transmission reduced by less than 5% after 6000 hours exposure to QUV testing, comprising cycles of 4 hours of UVA340nm at 60°C and 4 hours condensation at 40°C.

² when installed at purlin centres of 0.6 - 2.0m with a roof system which has been determined (without rooflights) to achieve an equal or better non-fragility classification.

Design Features.

All Energysaver FAIRs include Hardpak fillers at each end and every intermediate purlin position, providing much greater support for fasteners to ensure more reliable installation. Hardpak fillers have a bulk compressive modulus of 8MPa, ensuring an 80mm deep filler will compress by less than 0.2mm when subjected to the weight of a 90kg man (applied evenly).

All Energysaver FAIRs include Underlap Strip as standard, specially profiled to match the underlap corrugation and fitted in a single piece to match the full length of the FAIR, allowing use of standard sidelap fasteners to ensure more reliable installation on site.

All Energysaver FAIRs are supplied in Ecopac packaging, allowing outdoor storage whilst minimizing use of packaging materials reducing waste and enhancing sustainability.

Manufacture.

Safelight GRP is manufactured to EN 1013 under ISO 9001 Quality Management System.

Tolerances.

Sheet weight:	± 10%
Sheet length:	-0 +20mm (for sheets <2.5m) -0% +0.8% (for sheets >2.5m)
Cover width:	± 0.8%
Squareness:	0.5% of cover width

Installation.

See detailed installation instructions for products further on in this brochure.

Maintenance, Handling & Storage.

For full maintenance, handling and site storage details see separate data sheet - COSHH Data Sheet 02.

³ when all other components have been specified accordingly and it has been demonstrated that the roof system (without rooflights) will retain the same non-fragile classification for the same period.

⁴ as defined in National Annex to BS EN 1013.

⁵ please note: some colour pigments can fade over time particularly in translucent sheets, and long term colour stability cannot be guaranteed; please consult BMDS for full details.

Safelight EnergySaver FAIRs.

Factory Assembled Insulating Rooflights

Fire Classifications of Trilite GRP rooflights

The table below clarifies which fire classifications Trilite GRP rooflights achieve by rooflight grade:

Rooflight Grade	Rooflight Fire Classification					
	Roof Covering		Internal Lining			
	National classification	European classification	National classification			European classification
	(BS 476-3)	(EN 13501-5)	(BS 476-7)	(BS 476-6)	BS 2782-0 Method 508A	(EN 13501-1)
Trilite - SAB3	SAB	B _{ROOF} (t4)	Class 3	NPD	NPD	NPD
Trilite - SAA1	SAA	B _{ROOF} (t4)	Class 1	NPD	TP(a)	NPD
Trilite - SAA0 1.8 kg/m ²	SAA	B _{ROOF} (t4)	Class 1	Class 0	NPD	NPD

NPD - No Performance Declared

Refer to Technical Bulletin 106 or Rooflight Association Quickguides for further details on fire classification requirements.

The fire classification of Trilite GRP rooflight sheets is printed on each rooflight; in addition, a coloured tracer is incorporated to identify the fire rating:

- SAB3 are identified with a blue tracer
- SAA1 are identified with a red tracer
- SAA0 are identified with a red and yellow tracer

Transmission Values

Rooflight Application	Ur Value* (horizontal)	U Value (vertical)	Tv Visible Light Transmission	G Value Total Solar Transmittance	Shading Coefficient
Energysaver 2.1	2.1 W/m ² K	1.9 W/m ² K	0.56	0.52	0.59
Energysaver 1.5	1.5 W/m ² K	1.3 W/m ² K	0.51	0.46	0.53
Energysaver 1.2 **	1.2 W/m ² K	1.1 W/m ² K	0.49	0.41	0.47
Energysaver 1.1	1.1 W/m ² K	1.0 W/m ² K	0.46	0.41	0.47
Energysaver 0.9 **	0.9 W/m ² K	0.9 W/m ² K	0.44	0.31	0.35

* Thermal performance now assessed in the horizontal plane as required by UK Building Regulations, and now defined as a Ur Value (to denote horizontal plane assessment); surface area ratio is 1; see Technical Bulletin 434 for further details.

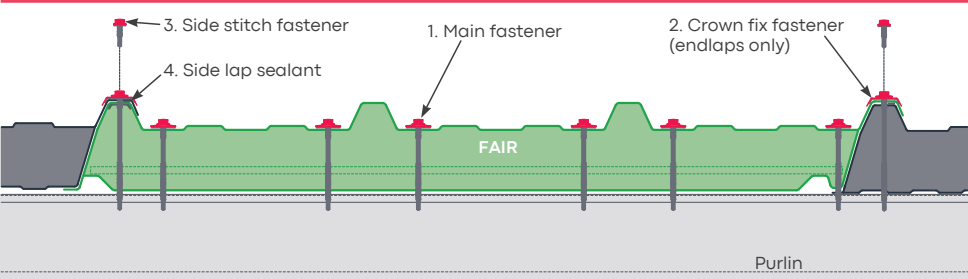
** Not covered by BBA certification.

Physical Properties

TENSILE STRENGTH: 90 MPa	FIXING PULL-OUT LOAD: 29mm washer: 2090 N	FLEXURAL MODULUS: 6600 MPa
FLEXURAL STRENGTH: 180MPa	COEFFICIENT OF LINEAR EXPANSION: 22 X 10 ⁻⁵ /°C	GLASS CONTENT: 33%
BARCOL HARDNESS: 40 - 50	SERVICE TEMPERATURE: -20°C TO 80°C	

Fairs 24 & 30 150mm Endlap Installation Guide.

Main Fasteners - End Lap & Intermediate Purlin



- 1

Main fastener.

Stainless steel Ø5.5/6.3mm with Ø29mm sealing washer with soft bonded seal, typically poppy red; min 5 fasteners per purlin, fitted in the trough, max 250mm apart; for profiles >200mm pitch use two fasteners per trough, located either side of the main corrugations. See below for typical fastener references.
- 2

Crown fix fastener (optional).

Stainless steel Ø5.5/6.3mm with sealing and saddle washer, typically poppy red; fix at end laps along the end lap fixing line into the purlin, on each side lap of the end lap (2 per end lap). See below for typical fastener references.
- 3

Side-stitch fastener.

Stainless steel side stitch fastener with Ø19mm sealing washer, typically poppy red; fix at 300mm to max 400mm centres and evenly spaced about all FAIR end laps - not through the end lap joint. See below for typical fastener references.
- 4

Side lap sealant.

One run of Class A 6x5mm cross linked butyl mastic, pale coloured, positioned on the crown of the side lap corrugation, on the weather side of the side stitch fasteners. Immediately downslope of the end lap, it is necessary to have a double thickness of side lap sealant for a distance of min 50mm on the side where the outer sheet underlaps adjacent sheets. The same applies for the side lap sealant immediately upslope of the end lap on the side where the outer sheet overlaps the adjacent panels.
- 5

End lap sealant.

Two beads of Class A 6x5mm cross linked butyl mastic, pale coloured, position max 25mm above and below fixing line. If a third seal at the tail of the end lap is required, gun grade silicone (ISO11600-F-25LM) should be used.
- 6

FAIR alignment.

FAIRs must be seated on the purlin/extension plate by a nominal 40mm (min 30mm) at the up slope lap, this ensures full support for internal reinforcement and is essential for non-fragility.
- 7

Purlin extension plates.

Purlin extension plates are recommended to ensure correct support and alignment at lap positions, where on-site steelwork tolerances cause variations from the nominal position.
- 8

Hardpak fillers.

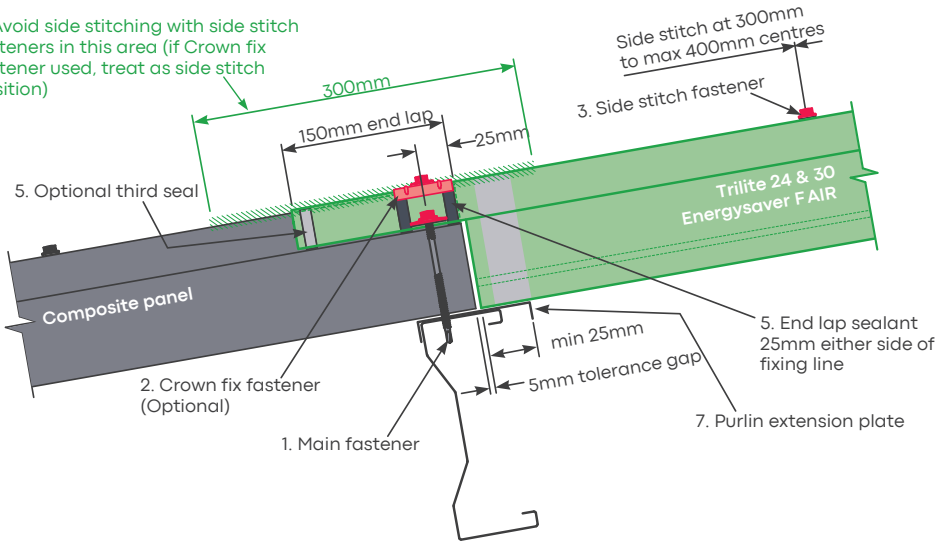
It is essential to ensure the Hardpak fillers are located directly over the purlin/extension plate at the up slope end and intermediate positions to allow the fixing of main fasteners into the purlin.

Recommended Fixing Point Fasteners.

Main Fasteners	04E53SCTHT x Length + S29
Crown Fix Fasteners	04E53SCTHT x Length + S19 + Saddle Washer
Side Stitch Fasteners	04E53SCTS25S19

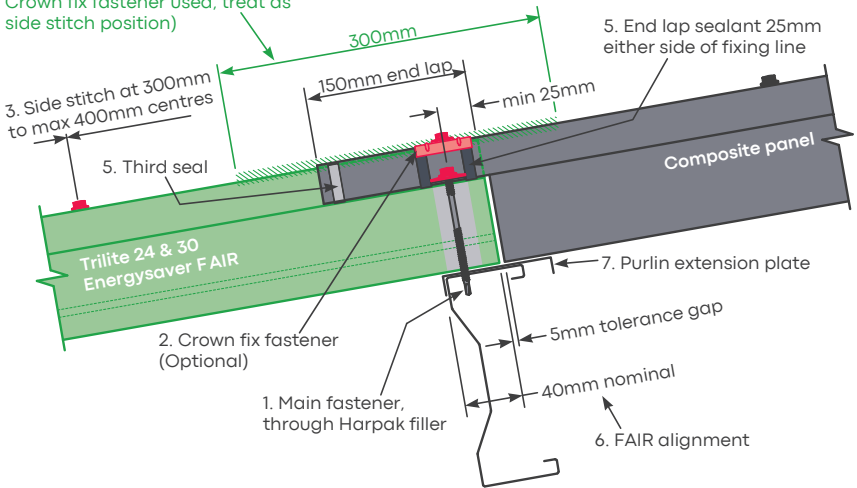
Down Slope End Lap

3. Avoid side stitching with side stitch fasteners in this area (if Crown fix fastener used, treat as side stitch position)

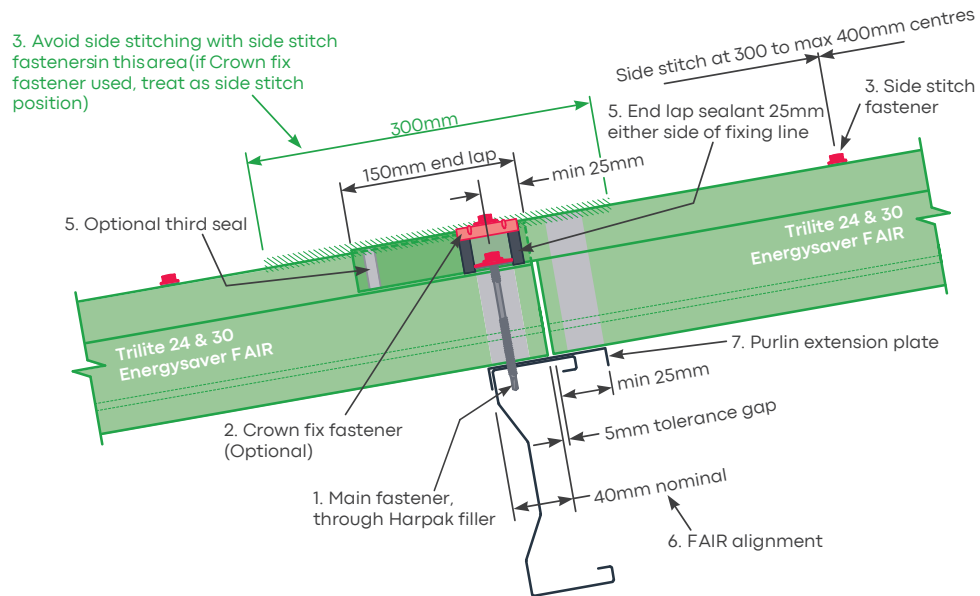


Up Slope End Lap

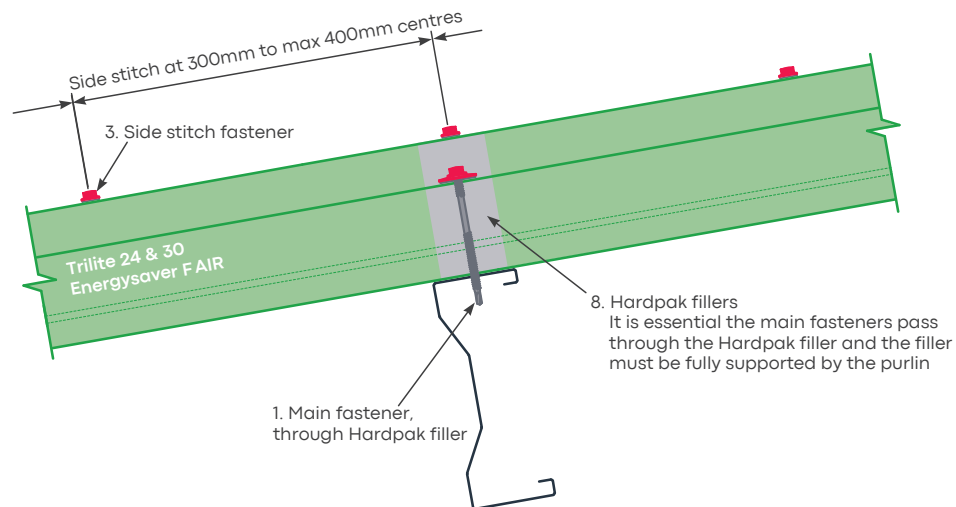
3. Avoid side stitching with side stitch fasteners in this area (if Crown fix fastener used, treat as side stitch position)



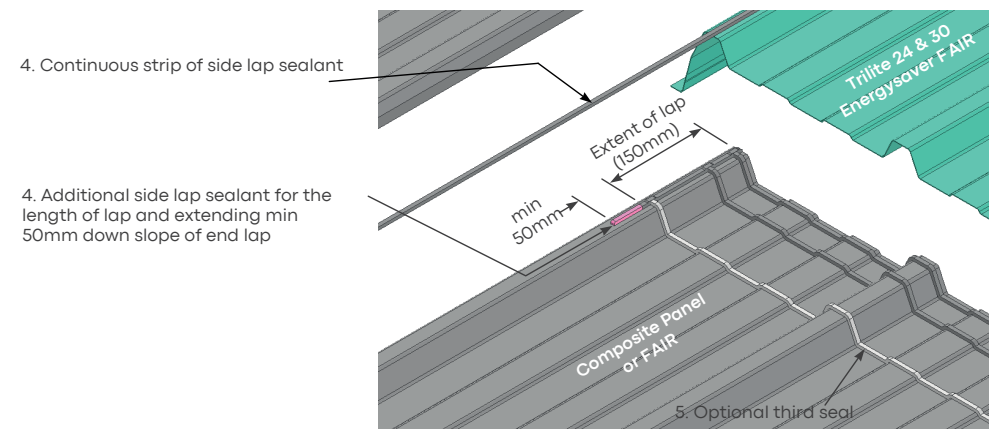
FAIR to FAIR End Lap



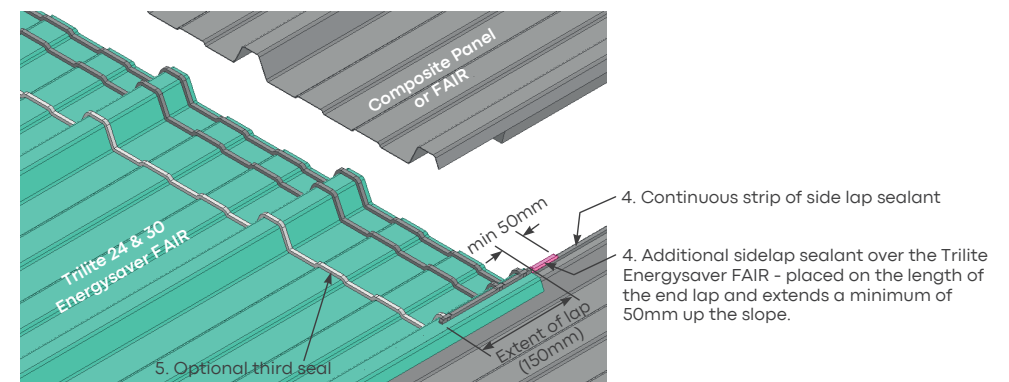
Intermediate Purlin Position



Down Slope End Lap - Additional Sealing Requirements



Down Slope End Lap - Additional Sealing Requirements



MINIMUM ROOF PITCH
Minimum design roof pitch 5.5° (finished roof pitch 4°)



CORRECT HANDLING OF GRP IS CRITICAL
- full guidance given in TB154



DO NOT
over drive fasteners



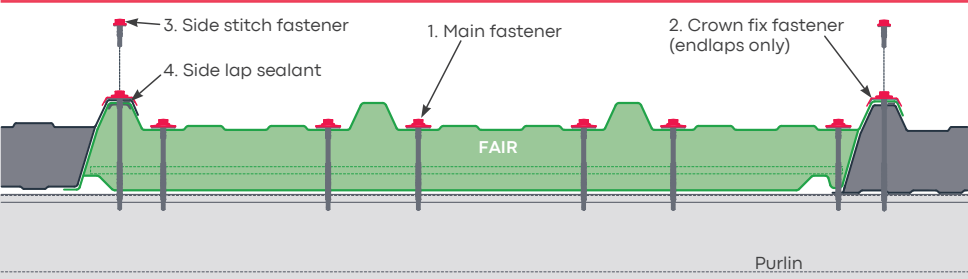
ONLY
use good quality assured fasteners

*Minimum Roof Pitch

Trilite Energysaver FAIRs are recommended for a minimum a minimum design pitch of 5.5 degrees, to ensure a minimum finished roof pitch of 4 degrees after allowing for tolerances and on site variations in accordance with BS5427 'Code of practice for the use of profiled sheet for roof and wall cladding on buildings (see BS5427:2016 section 5.1.3). If these rooflights are fitted at lower than 4° finished roof pitch, there will not be any detrimental effect on the rooflight sheet itself, but the risk increases of leaks at endlaps or fixings occurring due to small variations in installation details (see BS5427, Note 3 to 5.1.3). Heavyweight Trilite rooflights are more rigid, providing more even compression of sealants and less localised deflection around fasteners, thus reducing risk of leaks at endlaps or fixings and should be considered for use on applications near BS5427 minimum pitch recommendations.

FAIRs 36, 45 & Safelight 150mm Endlap Installation Guide.

Main Fasteners - End Lap & Intermediate Purlin



- 1

Main fastener.

Ø5,5/6,3mm with Ø19mm or Ø29mm sealing washer with soft bonded seal, typically poppy red; min 5 fasteners per purlin, fitted in the trough, max 250mm apart; for profiles >200mm pitch use two fasteners per trough, located either side of the main corrugations. See below for typical fastener references.
- 2

Crown fix fastener (optional).

Ø5,5/6,3mm with sealing and saddle washer, poppy red; fix at end laps along the end lap fixing line into the purlin, on each side lap of the end lap (2 per end lap). See below for typical fastener references.
- 3

Side-stitch fastener.

Side stitch fastener with Ø19mm sealing washer, typically poppy red; fix at max 600mm centres and evenly spaced about all FAIR end laps - not through the end lap joint. See below for typical fastener references
- 4

Side lap sealant.

One run of Class A 6x5mm cross linked butyl mastic, pale coloured, positioned on the crown of the side lap corrugation, on the weather side of the side stitch fasteners. Immediately down slope of the end lap, it is necessary to have a double thickness of side lap sealant for a distance of min 150mm on the side where the outer sheet under laps adjacent sheets. The same applies for the side lap sealant immediately up slope of the end lap on the side where the outer sheet overlaps the adjacent panels.
- 5

End lap sealant.

Two beads of Class A Ø8mm cross linked butyl mastic, pale coloured, position max 25mm above and below fixing line. If a third seal at the tail of the end lap is required, gun grade silicone (ISO11600-F-25LM) should be used.
- 6

FAIR alignment.

FAIRs must be seated on the purlin/extension plate by a nominal 60mm at the up slope lap, this ensures full support for internal reinforcement and is essential for non-fragility.
- 7

Purlin extension plates.

Purlin extension plates are recommended to ensure correct support and alignment at lap positions, where on-site steelwork tolerances cause variations from the nominal position.
- 8

Hardpak fillers.

It is essential to ensure the Hardpak fillers are located directly over the purlin/extension plate at the up slope end and intermediate positions to allow the fixing of main fasteners into the purlin.

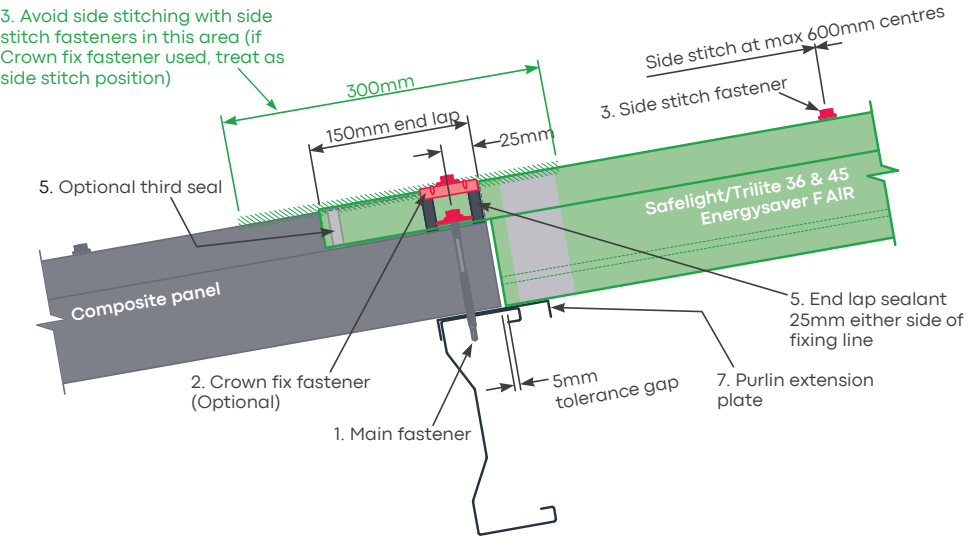
Fastener material selection and typical references

These heavyweight rooflights are no more dependant on fixings for safe performance than the surrounding metal sheet and from a durability aspect, choice of carbon or stainless steel fasteners can therefore match the type of fastener being used on the surrounding roof. However, non-fragility is a function of a complete assembly and will only be maintained as long as all components (including fixings) continue to perform as new. Where a roof is being designed to remain non-fragile for 25 years (which is often the case when these heavyweight rooflights are being specified) then stainless steel fixings should be specified, as confirmed in industry guidance defined in NARM NTDO3. Typical Stainless steel fastener references are as follows.

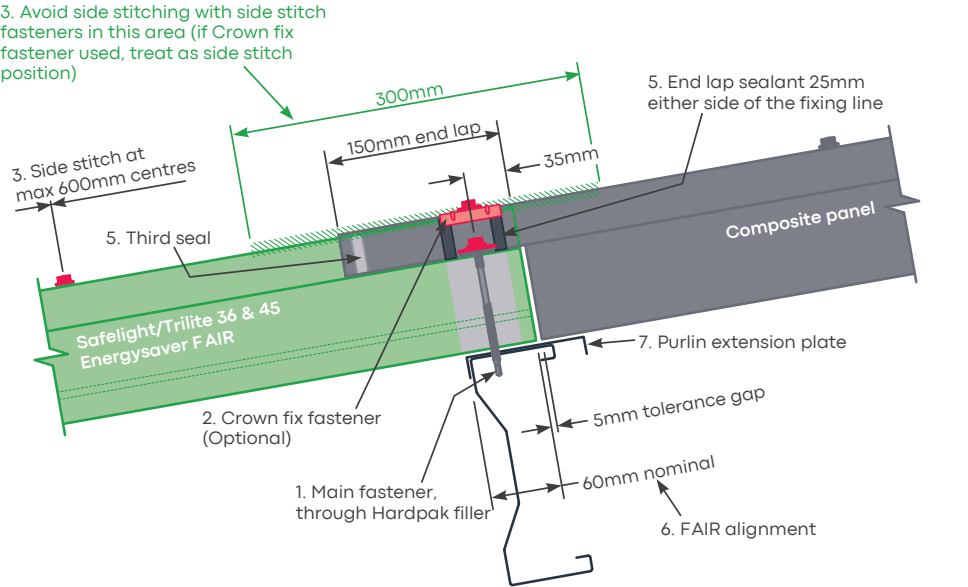
Recommended Fixing Point Fasteners.

Main Fasteners	04E53SCTHT x Length + S29
Crown Fix Fasteners	04E53SCTHT x Length + S19 + Saddle Washer
Side Stitch Fasteners	04E53SCTS25S19

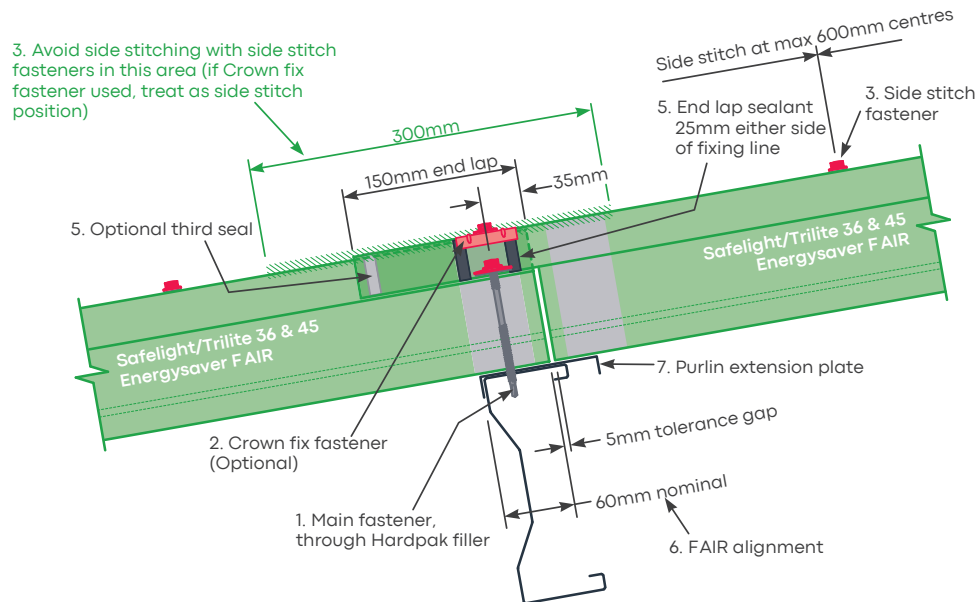
Down Slope End Lap



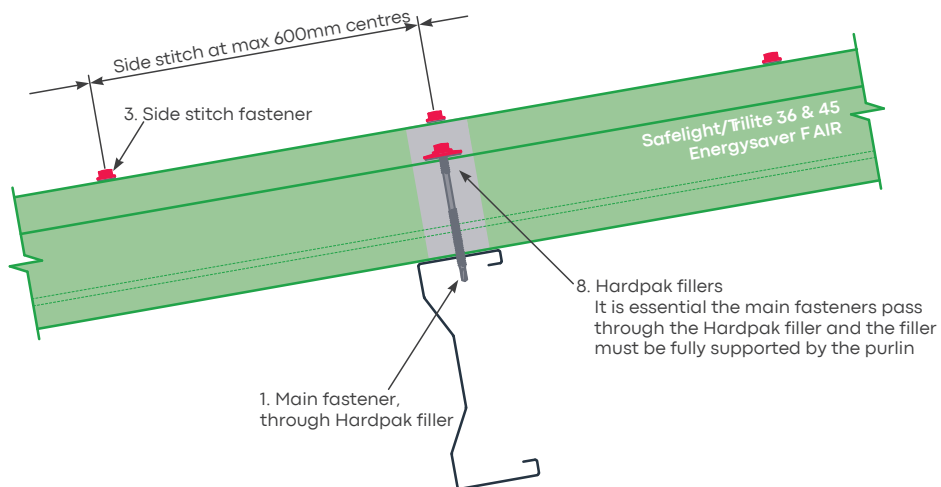
Up Slope End Lap



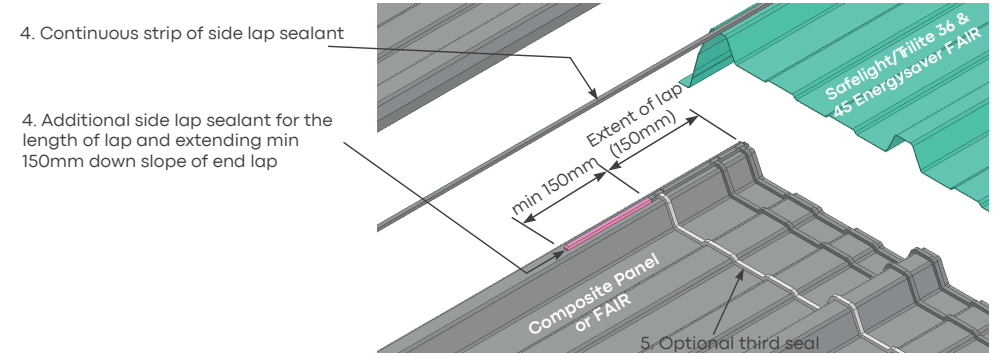
FAIR to FAIR End Lap



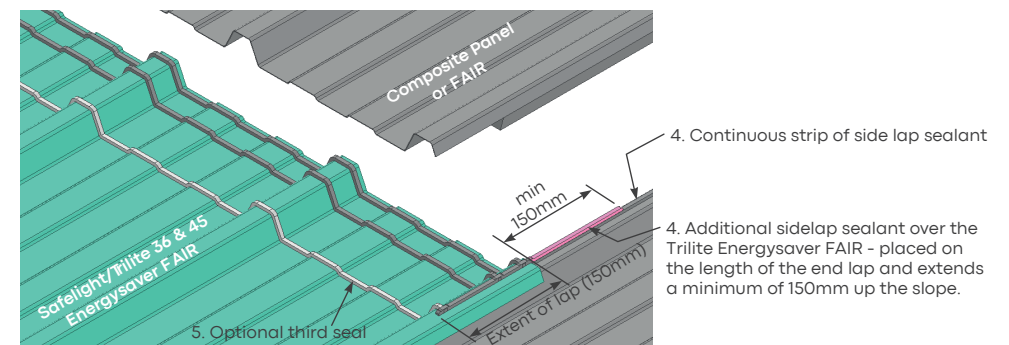
Intermediate Purlin Position



Down Slope End Lap - Additional Sealing Requirements



Up Slope End Lap - Additional Sealing Requirements



MINIMUM ROOF PITCH
Minimum design roof pitch 5.5° (finished roof pitch 4°)



CORRECT HANDLING OF GRP IS CRITICAL
- full guidance given in TB154



DO NOT
over drive fasteners



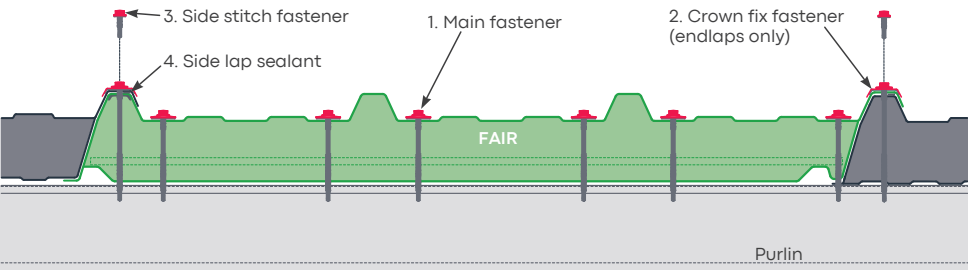
ONLY
use good quality assured fasteners

*Minimum Roof Pitch

Trilite Energysaver FAIRs are recommended for a minimum a minimum design pitch of 5.5 degrees, to ensure a minimum finished roof pitch of 4 degrees after allowing for tolerances and on site variations in accordance with BS5427 "Code of practice for the use of profiled sheet for roof and wall cladding on buildings (see BS5427:2016 section 5.1.3). If these rooflights are fitted at lower than 4° finished roof pitch, there will not be any detrimental effect on the rooflight sheet itself, but the risk increases of leaks at endlaps or fixings occurring due to small variations in installation details (see BS5427, Note 3 to 5.1.3). Heavyweight Trilite rooflights are more rigid, providing more even compression of sealants and less localised deflection around fasteners, thus reducing risk of leaks at endlaps or fixings.

FAIRs 24 & 30 75mm Endlap Installation Guide.

Main Fasteners - End Lap & Intermediate Purlin



- 1 Main fastener.**

Stainless steel Ø5.5/6.3mm with Ø29mm sealing washer with soft bonded seal, typically poppy red; min 5 fasteners per purlin, fitted in the trough, max 250mm apart; for profiles >200mm pitch use two fasteners per trough, located either side of the main corrugations. See below for typical fastener references.
- 2 Crown fix fastener (optional).**

Stainless steel Ø5.5/6.3mm with sealing and saddle washer, typically poppy red; fix at end laps along the end lap fixing line into the purlin, on each side lap of the end lap (2 per end lap). See below for typical fastener references.
- 3 Side-stitch fastener.**

Stainless steel side stitch fastener with Ø19mm sealing washer, typically poppy red; fix at 300mm to max 400mm centres. See below for typical fastener references.
- 4 Side lap sealant.**

One run of Class A 6x5mm cross linked butyl mastic, pale coloured, positioned on the crown of the side lap corrugation, on the weather side of the side stitch fasteners. Immediately downslope of the end lap, it is necessary to have a double thickness of side lap sealant for a distance of min 50mm on the side where the outer sheet underlaps adjacent sheets. The same applies for the side lap sealant immediately upslope of the end lap on the side where the outer sheet overlaps the adjacent panels.
- 5 End lap sealant.**

Two beads of Class A 6x5mm cross linked butyl mastic, pale coloured, position max 25mm above and below fixing line.
- 6 FAIR alignment.**

FAIRs must be seated on the purlin/extension plate by a nominal 40mm (min 30mm) at the up slope lap, this ensures full support for internal reinforcement and is essential for non-fragility.
- 7 Purlin extension plates.**

Purlin extension plates are recommended to ensure correct support and alignment at lap positions, where on-site steelwork tolerances cause variations from the nominal position.
- 8 Hardpak fillers.**

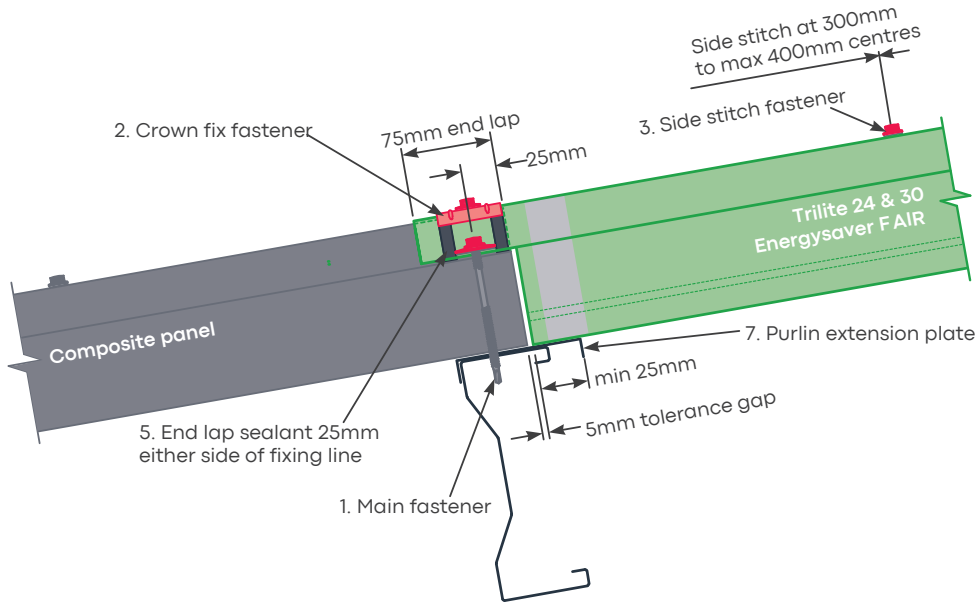
It is essential to ensure the Hardpak fillers are located directly over the purlin/extension plate at the up slope end and intermediate positions to allow the fixing of main fasteners into the purlin.

For full installation guide please contact our technical department.

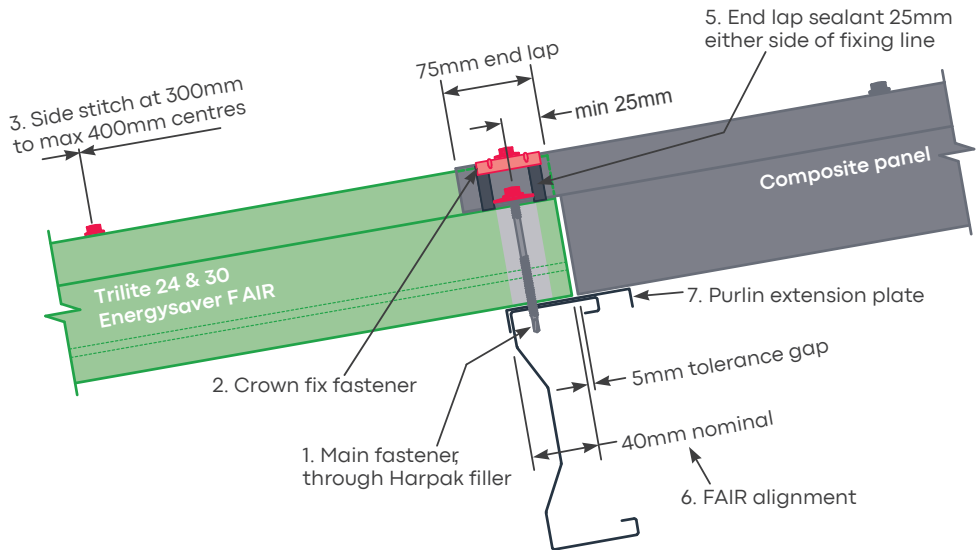
Recommended Fixing Point Fasteners.

Main Fasteners	O4E53SCTHT x Length + S29
Crown Fix Fasteners	O4E53SCTHT x Length + S19 + Saddle Washer
Side Stitch Fasteners	O4E53SCTS25S19

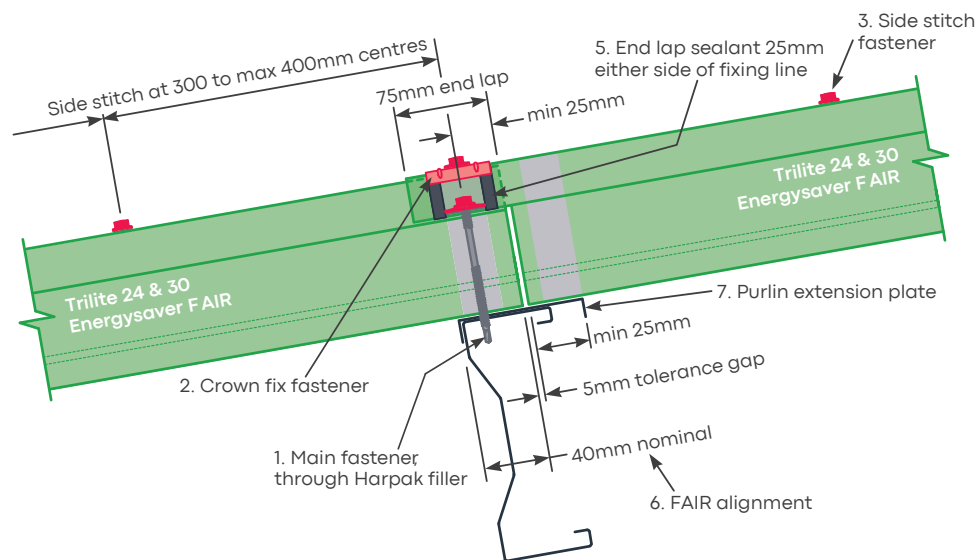
Down Slope End Lap



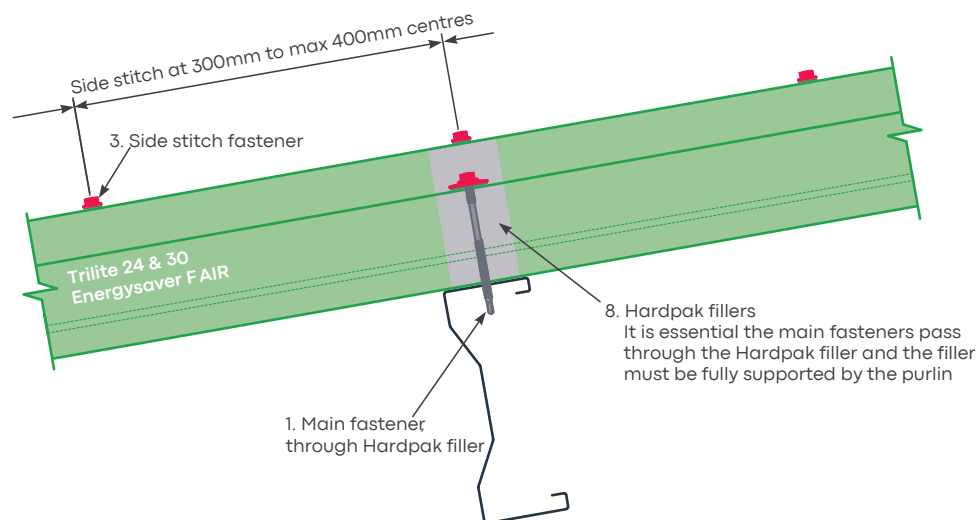
Up Slope End Lap



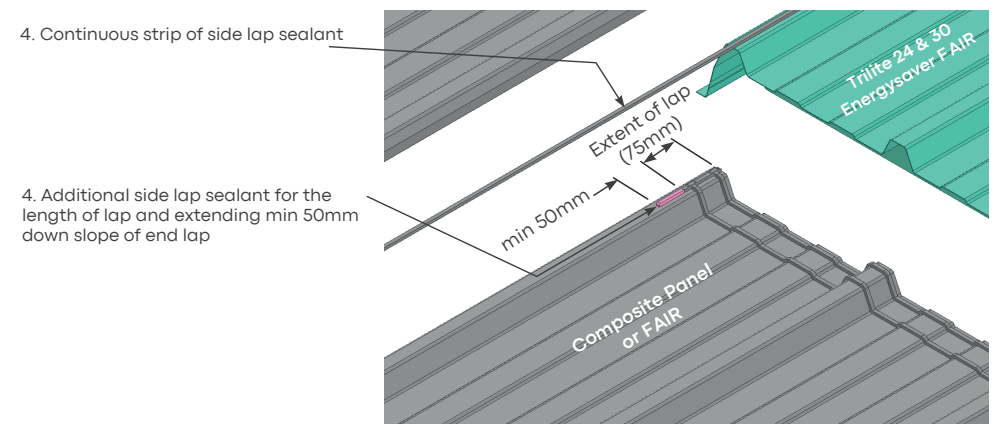
FAIR to FAIR End Lap



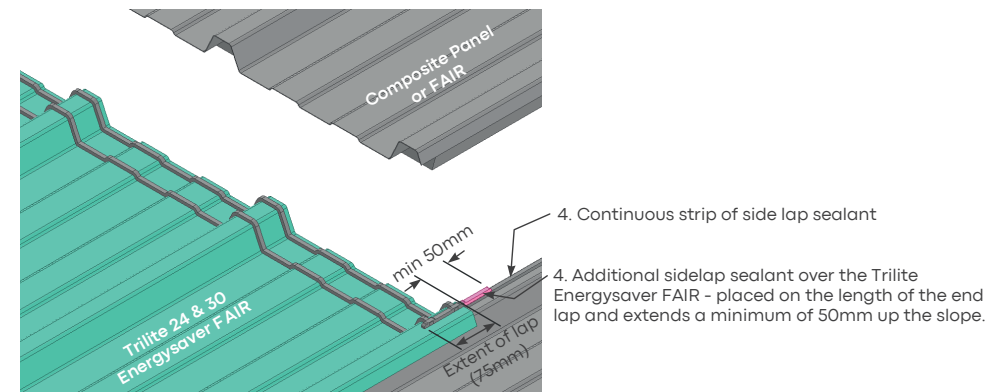
Intermediate Purlin Position



Down Slope End Lap - Additional Sealing Requirements



Down Slope End Lap - Additional Sealing Requirements



MINIMUM ROOF PITCH
Minimum design roof pitch 5.5° (finished roof pitch 4°)



CORRECT HANDLING OF GRP IS CRITICAL
- full guidance given in TB154



DO NOT
over drive fasteners



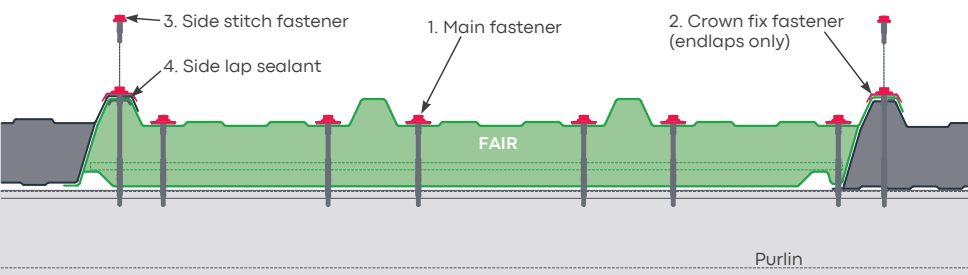
ONLY
use good quality assured fasteners

*Minimum Roof Pitch

Trilite Energysaver FAIRs are recommended for a minimum a minimum design pitch of 5.5 degrees, to ensure a minimum finished roof pitch of 4 degrees after allowing for tolerances and on site variations in accordance with BS5427 "Code of practice for the use of profiled sheet for roof and wall cladding on buildings (see BS5427:2016 section 5.1.3). If these rooflights are fitted at lower than 4° finished roof pitch, there will not be any detrimental effect on the rooflight sheet itself, but the risk increases of leaks at endlaps or fixings occurring due to small variations in installation details (see BS5427, Note 3 to 5.1.3). Heavyweight Trilite rooflights are more rigid, providing more even compression of sealants and less localised deflection around fasteners, thus reducing risk of leaks at endlaps or fixings and should be considered for use on applications near BS5427 minimum pitch recommendations.

FAIRs 36, 45 & Safelight 75mm Endlap Installation Guide.

Main Fasteners - End Lap & Intermediate Purlin



- 1

Main fastener.

Ø5,5/6,3mm with Ø19mm or Ø29mm sealing washer with soft bonded seal, typically poppy red; min 5 fasteners per purlin, fitted in the trough, max 250mm apart; for profiles >200mm pitch use two fasteners per trough, located either side of the main corrugations. See below for typical fastener references.
- 2

Crown fix fastener (optional).

Ø5,5/6,3mm with sealing and saddle washer, poppy red; fix at end laps along the end lap fixing line into the purlin, on each side lap of the end lap (2 per end lap). See below for typical fastener references.
- 3

Side-stitch fastener.

Side stitch fastener with Ø19mm sealing washer, typically poppy red; fix at max 600mm centres. See below for typical fastener references.
- 4

Side lap sealant.

One run of Class A 6x5mm cross linked butyl mastic, pale coloured, positioned on the crown of the side lap corrugation, on the weather side of the side stitch fasteners. Immediately down slope of the end lap, it is necessary to have a double thickness of side lap sealant for a distance of min 150mm on the side where the outer sheet under laps adjacent sheets. The same applies for the side lap sealant immediately up slope of the end lap on the side where the outer sheet overlaps the adjacent panels.
- 5

End lap sealant.

Two beads of Class A Ø8mm cross linked butyl mastic, pale coloured, position max 25mm above and below fixing line.
- 6

FAIR alignment.

FAIRs must be seated on the purlin/extension plate by a nominal 60mm at the up slope lap, this ensures full support for internal reinforcement and is essential for non-fragility.
- 7

Purlin extension plates.

Purlin extension plates are recommended to ensure correct support and alignment at lap positions, where on-site steelwork tolerances cause variations from the nominal position.
- 8

Hardpak fillers.

It is essential to ensure the Hardpak fillers are located directly over the purlin/extension plate at the up slope end and intermediate positions to allow the fixing of main fasteners into the purlin.

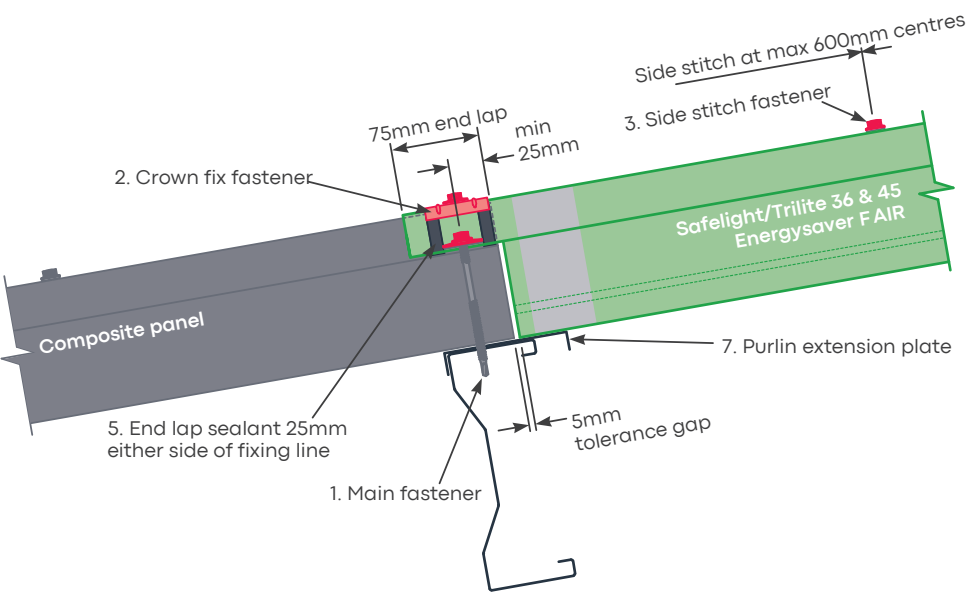
Fastener material selection and typical references

These heavyweight rooflights are no more dependant on fixings for safe performance than the surrounding metal sheet and from a durability aspect, choice of carbon or stainless steel fasteners can therefore match the type of fastener being used on the surrounding roof. However, non-fragility is a function of a complete assembly and will only be maintained as long as all components (including fixings) continue to perform as new. Where a roof is being designed to remain non-fragile for 25 years (which is often the case when these heavyweight rooflights are being specified) then stainless steel fixings should be specified, as confirmed in industry guidance defined in NARM NTDO3. Typical stainless steel fastener references are as follows.

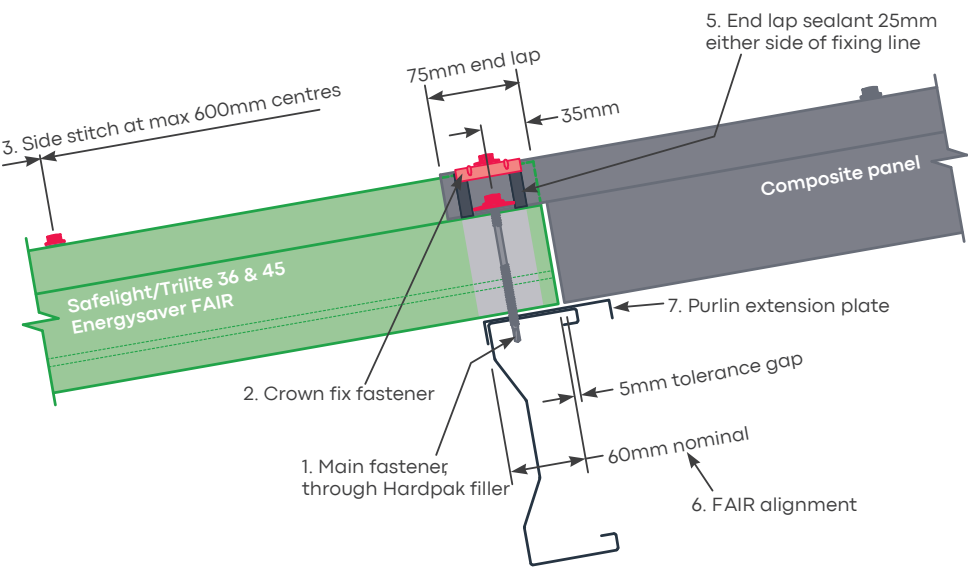
Recommended Fixing Point Fasteners.

Main Fasteners	04E53SCTHT x Length + S29
Crown Fix Fasteners	04E53SCTHT x Length + S19 + Saddle Washer
Side Stitch Fasteners	04E53SCTS25S19

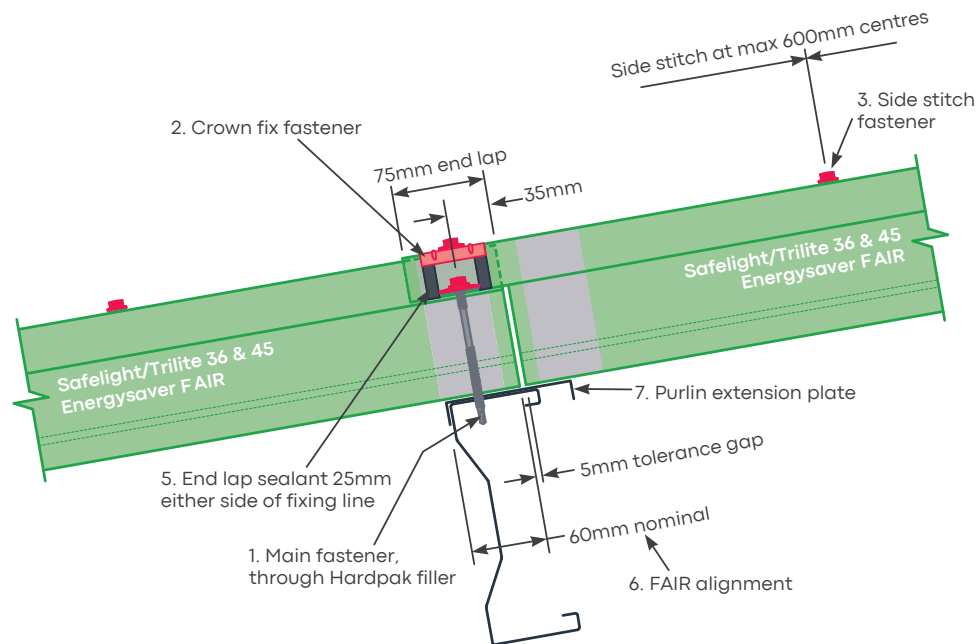
Down Slope End Lap



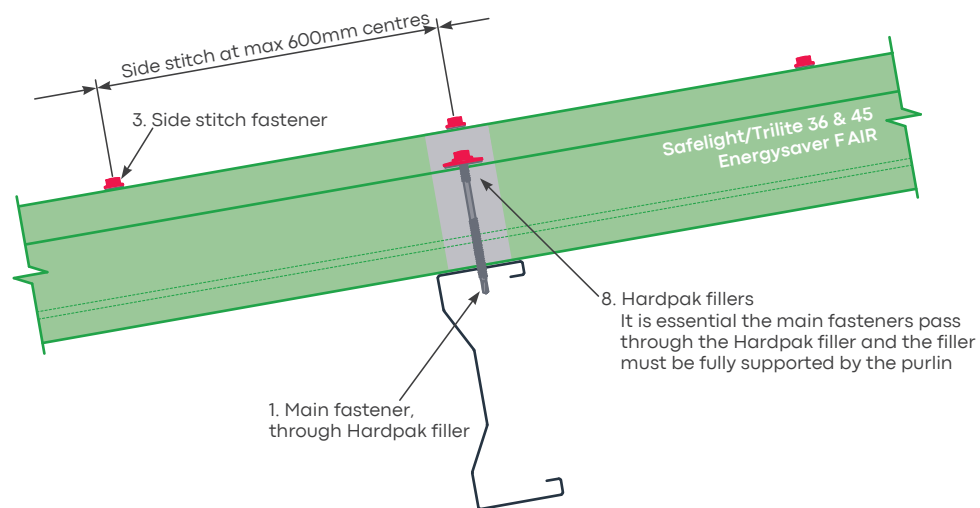
Up Slope End Lap



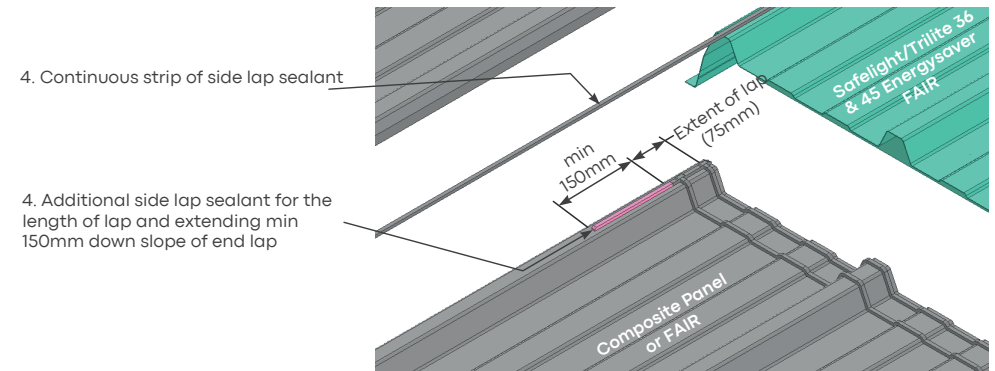
FAIR to FAIR End Lap



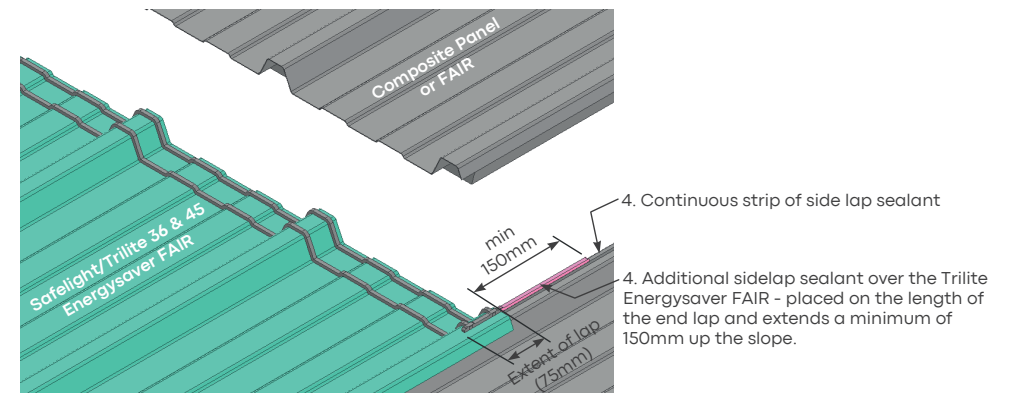
Intermediate Purlin Position



Down Slope End Lap - Additional Sealing Requirements



Down Slope End Lap - Additional Sealing Requirements



MINIMUM ROOF PITCH
Minimum design roof pitch 5.5° (finished roof pitch 4°)



CORRECT HANDLING OF GRP IS CRITICAL
- full guidance given in TB154



DO NOT
over drive fasteners



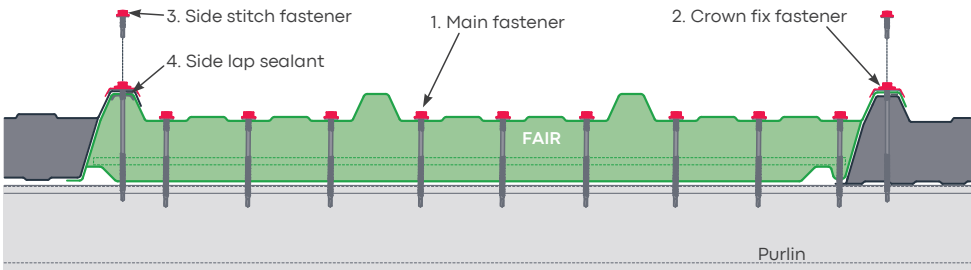
ONLY
use good quality assured fasteners

*Minimum Roof Pitch

Trilite Energysaver FAIRs are recommended for a minimum a minimum design pitch of 5.5 degrees, to ensure a minimum finished roof pitch of 4 degrees after allowing for tolerances and on site variations in accordance with BS5427 "Code of practice for the use of profiled sheet for roof and wall cladding on buildings (see BS5427:2016 section 5.1.3). If these rooflights are fitted at lower than 4° finished roof pitch, there will not be any detrimental effect on the rooflight sheet itself, but the risk increases of leaks at endlaps or fixings occurring due to small variations in installation details (see BS5427, Note 3 to 5.1.3). Heavyweight Trilite rooflights are more rigid, providing more even compression of sealants and less localised deflection around fasteners, thus reducing risk of leaks at endlaps or fixings.

Fairs 30, 36, 45 & Safelight Enhanced Specification Installation Guide.

Main Fasteners - End Lap



1

Main fastener.

Ø5.5/6.3mm with min Ø19mm sealing washer with soft bonded seal, typically poppy red. See page 2 for typical fastener references. End laps: 9 fasteners per purlin, fitted 3 per trough.

For the intermediate purlin (alternative option), the fastener type is the same as above apart from requiring a Ø29mm sealing washer, fitted 2 per trough.

2

Main crown fix fastener.

Ø5.5/6.3mm with sealing and saddle washer, typically poppy red. See page 2 for typical fastener references. End laps: fix at end laps along the fixing line into the purlin on each side lap, 2 per lap. Intermediate purlin positions: on each crown position.

3

Side-stitch fastener.

Side stitch fastener with Ø19mm sealing washer, typically poppy red; fix at max 450mm centres. See page 53 for typical fastener references.

4

Side lap sealant.

One run of Class A 6x5mm cross linked butyl mastic, pale coloured, positioned on the crown of the side lap corrugation, on the weather side of the side stitch fasteners. Immediately down slope of the end lap, it is necessary to have a double thickness of side lap sealant for a distance of min 150mm on the side where the outer sheet under laps adjacent sheets. The same applies for the side lap sealant immediately up slope of the end lap on the side where the outer sheer overlaps the adjacent panels, see page 55.

5

End lap sealant.

All endlaps should be sealed with 1 continuous row of 50x6mm U-section Butyl mastic with foam insert (RSBYM-6-0050G) positioned centrally in the lap.

6

FAIR alignment.

FAIRs must be seated on the purlin/extension plate by a nominal 60mm at the up slope lap, this ensures full support for internal reinforcement and is essential for non-fragility.

7

Purlin extension plates.

Purlin extension plates are recommended to ensure correct support and alignment at lap positions, where on-site steelwork tolerances cause variations from the nominal position.

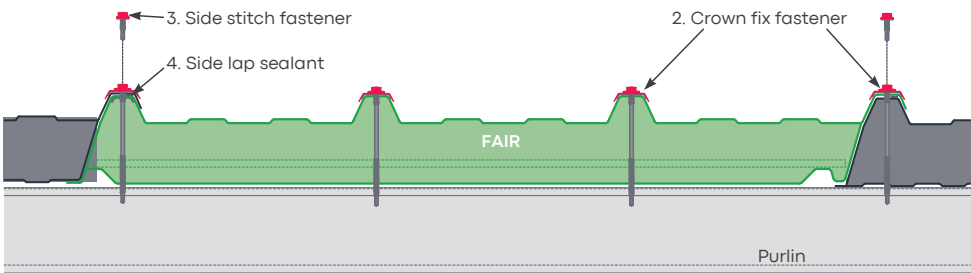
8

Hardpak fillers.

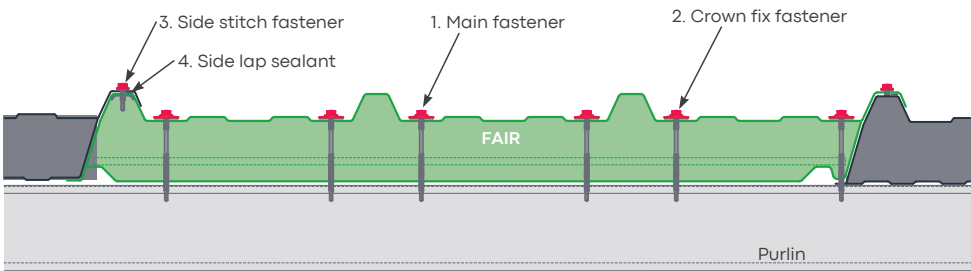
It is essential to ensure the Hardpak fillers are located directly over the purlin/extension plate at the up slope end and intermediate positions to allow the fixing of main fasteners into the purlin.

For full installation guide please contact our technical department.

Main Fasteners - Intermediate Purlin



Main Fasteners - Intermediate Purlin (alternative option)



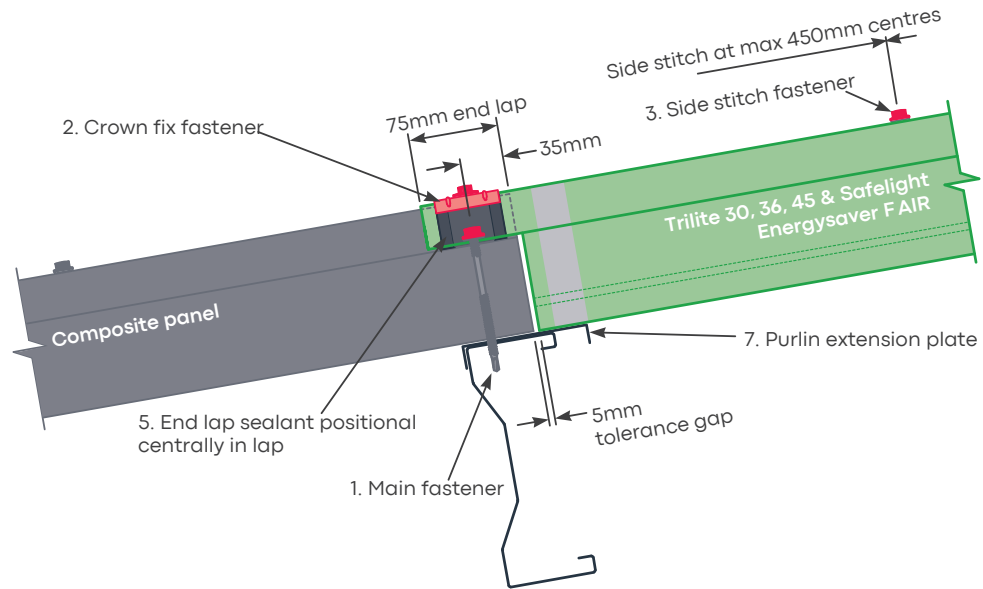
Fastener material selection and typical references

Trilite 30 Energysaver FAIRs require stainless steel fasteners. Heavyweight Trilite Energysaver FAIRs are no more dependant on fixings for safe performance than the surrounding metal sheet and from a durability aspect, choice of carbon or stainless steel fasteners can therefore match the type of fastener being used on the surrounding roof. However, non-fragility is a function of a complete assembly and will only be maintained as long as all components (including fixings) continue to perform as new. Where a roof is being designed to remain non-fragile for 25 years (which is often the case when heavyweight rooflights are being specified) then stainless steel fixings should be specified, as confirmed in industry guidance defined in NARM NTD03. Typical stainless steel fasteners references are as follows.

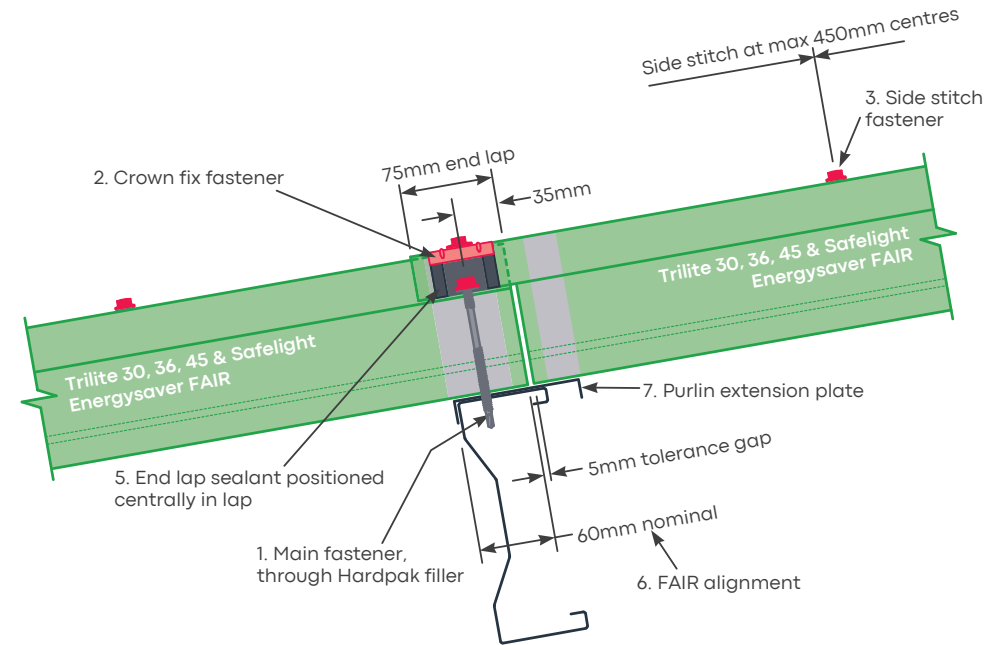
Recommended Fixing Point Fasteners.

Main Fasteners	04E53SCTHT x Length + S19
Crown Fix Fasteners	04E53SCTHT x Length + S19 + Saddle Washer
Intermediate (alternative)	04E53SCTHT x Length + S29
Side Stitch Fasteners	04E53SCTS25S19

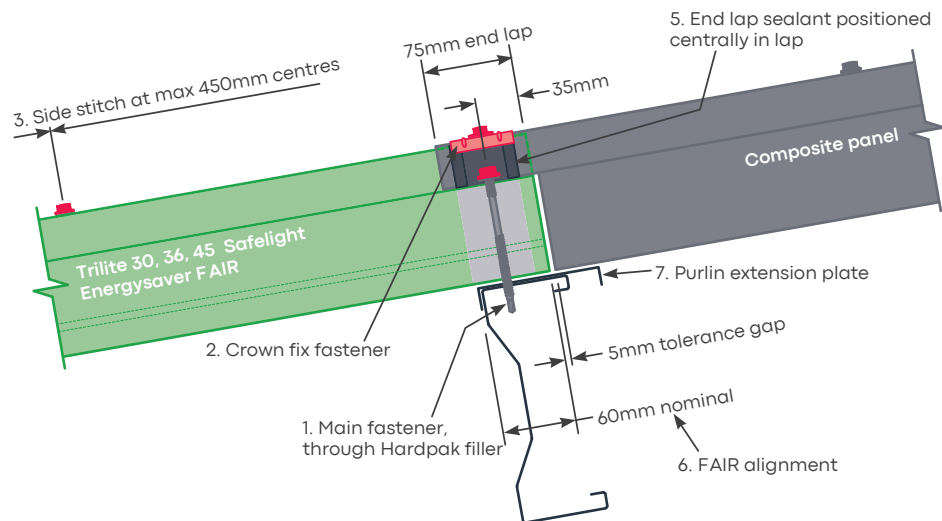
Down Slope End Lap



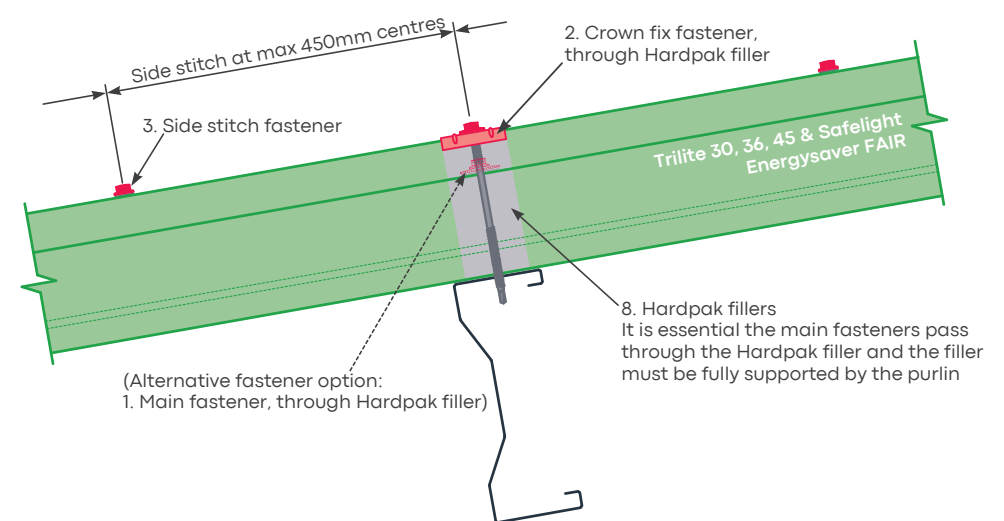
FAIR to FAIR End Lap



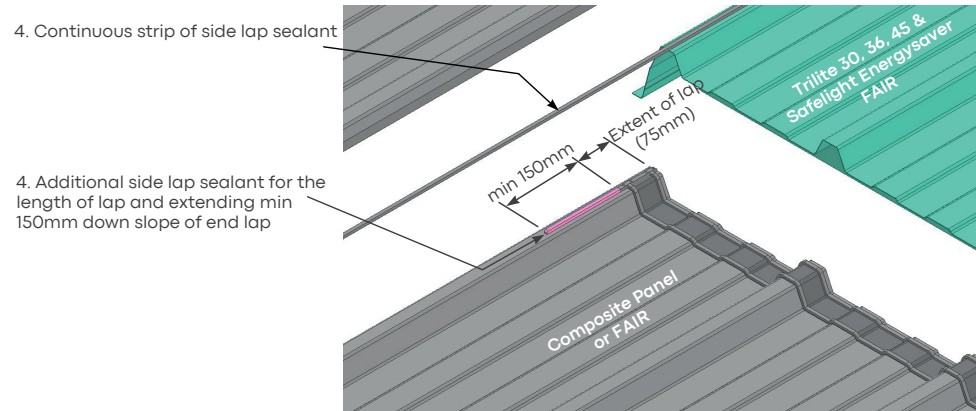
Up Slope End Lap



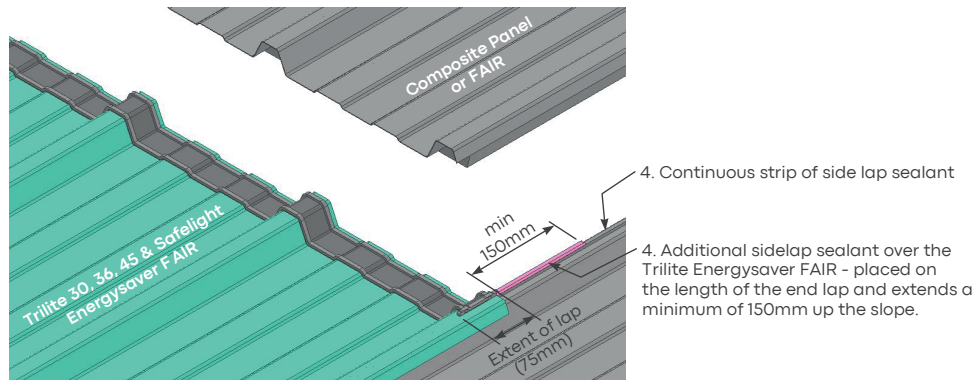
Intermediate Purlin Position



Down Slope End Lap - Additional Sealing Requirements



Up Slope End Lap - Additional Sealing Requirements



MINIMUM ROOF PITCH
Minimum design roof pitch
5.5° (finished roof pitch 4°)



CORRECT HANDLING OF GRP IS CRITICAL
- full guidance given in TB154



DO NOT
over drive fasteners



ONLY
use good quality
assured fasteners

*Minimum Roof Pitch

Safelight and Trilite Energysaver FAIRs are recommended for a minimum a minimum design pitch of 5.5 degrees, to ensure a minimum finished roof pitch of 4 degrees after allowing for tolerances and on site variations in accordance with BS5427 'Code of practice for the use of profiled sheet for roof and wall cladding on buildings (see BS5427:2016 section 5.1.3). If these rooflights are fitted at lower than 4° finished roof pitch, there will not be any detrimental effect on the rooflight sheet itself, but the risk increases of leaks at endlaps or fixings occurring due to small variations in installation details (see BS5427, Note 3 to 5.1.3). Heavyweight Trilite rooflights are more rigid, providing more even compression of sealants and less localised deflection around fasteners, thus reducing risk of leaks at endlaps or fixings and should be considered for use on applications near BS5427 minimum pitch recommendations.



Thermal Performance of Rooflights.

Regulatory changes to the conservation of fuel and power in 2021/2022 calls for a reduction in carbon emissions over the previous standards, achieved partly with an uplift in the performance of the building fabric and building services but also with the introduction of other measures such as on site power generation (e.g. photovoltaic panels and the use of heat pumps etc).

This also includes a significant change with the addition of a new metric for demonstrating regulatory compliance - primary energy; this is the measure of the building's operational energy consumption, which also includes the power used to create, transform and transport the energy from its raw form to where it is used.

Carbon emissions still remains as a measure to continue to drive us towards a low carbon future, although as the UK power grid moves closer towards carbon neutrality this metric will become less relevant and primary energy will become the main measure for low impact building design.

The metrics for compliance checks are now:

Target primary energy rate kWhPE/m ² /year	Target emission rate kWCO ₂ /m ² /year	Target fabric energy efficiency rate kWh/m ² /year
This metric has been introduced as a way of ensuring designers continue to consider energy efficient building design and limit excessive power use	This metric still remains to continue to drive us towards a low carbon future, although as the UK power grid moves towards carbon neutrality this metric will become less relevant	This metric was also introduced to ensure there is a need to design well insulated dwellings to reduce reliance on low carbon heating systems
For dwellings and non-dwellings	For dwellings and non-dwellings	Dwellings only
Scotland - Target delivered energy rate Wales - Target primary energy rate Northern Ireland - n/a	Scotland - Target emission rate Wales - Target emission rate Northern Ireland - Target emission rate	Scotland - n/a Wales - Target Fabric performance value Northern Ireland - n/a

Rooflight U Values.

Prior to the 2021/2022 Building Regulation changes, all rooflights were assessed for thermal performance in the vertical plane (such as a window, with horizontal heat flow), but this has now changed to assessing rooflights in the horizontal plane (with vertical heat flow) which is typically how rooflights are used and the reason for the change. (Please note: this is relevant for England, Scotland and Wales; Northern Ireland still requires an assessment in the vertical plane).

This does change the thermal performance characteristics of all rooflights because the heat transfer through a horizontal rooflight is typically more than through the same rooflight positioned vertically. This is highlighted in BRE document BR443 - Conventions for U value calculations which states a centre pane difference from vertical to horizontal orientation of up to +0.3 W/m²·K for triple skin plastic rooflights and +0.5 W/m²·K for double glazed glass units.

So when using rooflight U-values, for comparison or for use in energy assessments, it is important to understand and be clear on the orientation of the rooflight when assessed for thermal performance.

This change within Building Regulations also coincides with a change in the method of calculating the thermal performance of out-of-plane rooflights. The method of calculating the developed area has changed from being based on the internal surface area of the rooflight to the external surface area, as well as assessment in the horizontal plane. Guidance on this calculation method is given in the Rooflight Association (RA) Technical Document NTD2 and is based on the method in BS EN 1873:2014.

Thermal Performance of Rooflights.

This also includes the nomenclature where rooflight U values are now designated a U_r or U_{rc} value for the developed area value, and gives a helpful distinction to define the method of assessment. Previously, the thermal performance definition was either U-value or U_d-value for a developed area value (i.e. an out-of-plane rooflight). A summary of new and old naming conventions are below.

Common U-value definitions

There are a number of different ways of expressing thermal performance, from differing sources:

Value	Description
U value	Generally considered the true U value for a product, i.e. the overall heat loss through it, this is defined in BRE document BR443 and used in Approved Document L
U _{roof opening}	The true U value for a product, i.e. the overall heat loss through it, this is defined in BRE document BR443 for out-of-plane rooflights (same as U value above)
U _r value	The developed area U value for rooflight-only, defined in BS EN 1873:2014 and RA Technical Document NTD2, and suitable for checking for compliance against Building Regulation fabric limits
U _{rc} value	The developed area U value for rooflight-with-upstand, defined in BS EN 1873:2014 and RA Technical Document NTD2, and suitable for checking for compliance against Building Regulation fabric limits
U _p value	The developed area U value for either rooflight-only or rooflight-with-upstand, this is defined in BRE document BR443 for out-of-plane rooflights
U _a value	The developed area U value for either rooflight-only or rooflight-with-upstand, this was the previous definition for the developed area U value (when assessed vertically and on the internal surface area); the nomenclature is still used in Approved Document L but should be the U _r or U _{rc} value
Surface: area ratio	This is the ratio of the developed area of the rooflight and rooflight opening, typically for out-of-plane rooflights

U_r and U_{rc} values.

The thermal performance of Brett Martin Daylight Systems rooflights are defined as either a U_r or U_{rc} value; which confirms the rooflight has been assessed in the horizontal plane, and for out-of-plane rooflights have been calculated in accordance with guidance given in RA Technical Document NTD2.

For out-of-plane rooflight the U_r or U_{rc} value will be accompanied by the **surface area ratio**.

For in-plane rooflights such as the Trilite GRP range the surface:area ratio will be 1 so just the U_r value is used.

The U_r and U_{rc} values are suitable for use when comparing against other products where the thermal performance has been assessed in the horizontal plane and, where relevant, in accordance with guidance given in RA Technical Document NTD2. They are also the thermal performance values for checking compliance against Building Regulation fabric limits (please note: Building Regulations still refer to the rooflight developed area U value as a U_a value but assessed in the horizontal plane).

They are also suitable for use in building energy assessments but must be accompanied with the appropriate surface:area ratio, to allow adjustment to the true U value to account for overall heat loss through the rooflight.

The thermal performance characteristics of Brett Martin Daylight Systems rooflights are given in the relevant rooflight datasheets.

Fixing Point.

Everything on point

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